

ARI Research Note 98-16

**Interpersonal Deception Theory: Examining Deception From
a Communication Perspective**

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University of Arizona

**Research and Advanced Concepts Office
Michael Drillings, Chief**

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13. ABSTRACT (Maximum 200 words) Interpersonal Deception Theory was tested in an analysis of verbal behavior in interviews characterized by falsification, equivocation, or concealment. It was predicted that language choice in deceptive interactions would reflect (a) strategic attempts to manage information and behavior through indirect, nonimmediate, and vague responses and (b) nonstrategic leakage of anxiety through humor. Also, senders were expected to be more indirect, nonimmediate, and vague and use more humor when suspected. Seventy-two non-experts adults and 6 experts from a U.S. Army intelligence school participated in a 3 (type of deception) X 2 (suspicion) X 2 (relational familiarity) X 2 (expertise) X 4 (type of response) within-subjects factorial design. As expected, deceptive responses contained more indirect, nonimmediate, and vague language, especially spontaneous and repeated deceptions. Planned deceptions may have contained more behavior management aimed at avoiding indirect and vague responses. Deception also contained humor. Suspicion increased indirect, nonimmediate, and vague language, but these cues are managed with friends and experts. Falsifications were most direct, nonimmediate, and vague.				
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Final Report

Interpersonal Deception Theory: Examining Deception From a Communication Perspective

Contract # MDA903-90-K-0113

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September 1994

Foreword

The research summarized in this report represents a four-year journey into the uncharted territory of interpersonal deception. The emerging picture reorients thinking about the nature of deceptive encounters by synthesizing our interdependent strands of research into communicator credibility, nonverbal behavior, interpersonal adaptation, and social influence. Our Interpersonal Deception Theory recognizes deception as a communicative event, rather than merely a psychological phenomenon. In so doing, it raises serious challenges to the way deception has been understood previously. It also offers numerous implications for fundamental features of interpersonal communication across a variety of communication contexts.

Several organizations and individuals were instrumental in bringing this research to fruition. The generous financial support from the Office of Basic Research (now the Office of Research and Advanced Concepts) in the U.S. Army Research Institute provided the structure and resources for conducting these experiments. Just as important was the intellectual support provided by Drs. Michael Kaplan, Michael Drillings, and George Lawton. Their collegial spirit allowed us to pursue our ideas about deception, sometimes down unanticipated paths. We hope they agree that the journey has provided a fresh perspective on a common communication phenomenon. We regret that we are no longer able to travel this road together.

Experiment 3 could not have been conducted with the cooperation and invaluable assistance of the Army Research Institute Field Unit at Ft. Huachuca, especially Dr. Beverly Knapp, Ms. Ann Lee, and Dr. Julie Hopson, and the officers and personnel at the Human Intelligence school. We also wish to acknowledge the additional financial support for the graduate students working on the contracted research provided by Augmentation Awards for Science and Engineering Research Training (ASSERT) from the U. S. Army Research Office.

The successful completion of this contract depended greatly upon the work of several bright, enthusiastic graduate research assistants, including Walid Afifi, Brooks Aylor, Tanya Boone, Alleen Busiig, Amy Ebesu, Clyde Feldman, Joseph Grandpre, Laura Guerrero, Frank Hunsaker, Patricia Rockwell, James Roiger, Krystyna Strzyzewski Aune, and Cindy White. Many thanks to all of them.

Thanks also to Dr. Janet Bavelas at the University of Victoria (Canada) for sharing her audio- and video-taped experimental interactions and her insights into equivocation that became the basis for Experiment 4.

Finally, several people at the University of Arizona provided tangible and intangible institutional support for this project. Warmest thanks to department heads, Drs. Michael Burgoon and William Crano; Dean Lee Sigelman; administrative assistants Merillee Jesseph and Terrell Bivins; and secretary Nancy Linafelter.

**Interpersonal Deception Theory:
Examining Deception From a Communication Perspective**

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Introduction

Research on deception has generally focused on psychological processes rather than the active exchange of information that occurs between senders and receivers. Yet our research has illustrated that a communication perspective is necessary if researchers hope to uncover the dynamics underlying deceptive interaction.

The research program reported herein was motivated by the belief that both senders and receivers actively shape the deception process. A typical exchange involves a number of moves and countermoves. For instance, senders may devise strategies, manage impressions, and leak information when transmitting a deceptive message. Receivers decipher these messages, while simultaneously sending out their own messages regarding how skeptical or believing they are. Senders may then adjust their performances based on the receiver's skeptical reaction. Receivers may notice this adjustment and hide their suspicion. Because the majority of research on deception has focused on noninteractive situations and on passive receivers' impressions of believability, we felt that a program of research guided by an interpersonal communication perspective would add important new information to our understanding of the dynamic nature of the deception process.

An overarching objective of our research program was to analyze deception and its detection within a communication framework, with emphasis on the dynamics of interpersonal exchanges. In doing so, we hoped to further develop a theory of interpersonal deception. The various studies conducted under our contract over the past four years have enabled us to refine and empirically support such a theory, which we have termed Interpersonal Deception Theory (IDT).

Contract Objectives

The original objectives of the contracted research were as follows:

1. To analyze deception and its detection within a communication framework, with emphasis on the dynamics of interpersonal exchanges.
2. To examine how deceivers' motivations and locus of benefit (self or other) influence (a) their choice of deception strategies and (b) their deception success.
3. To examine how type of deception (e.g., fabrication, concealment) affects (a) deceivers' actual communication behavior and (b) their deception success.
4. To examine how suspicion of deception is communicated.
5. To examine how suspicion affects the behavior of both truth tellers and liars.
6. To explore the sequence of moves and countermoves used by deceivers and detectors when suspicion is aroused.
7. To analyze the influence of relational familiarity on all of the above.

These objectives were modified slightly after the first two experiments presented interesting and unexpected findings. With the approval of the scientific liaison officers in the Office of Research and Advanced Concepts, we delayed investigating the influence of motivations (Objective 2) in order to conduct a more detailed evaluation of the influence of deception type on interaction behavior and a comparison between participant and observer perceptions.

The modified objectives also produced changes in the proposed experiments. We expanded

the third experiment examining the type of deceptive communication (i.e., falsification, equivocation, concealment) to three separate investigations. The first of these was a pilot experiment to test experimental inductions creating different types of deception (i.e., falsification, equivocation, and concealment). This pilot experiment required considerable time and resources but answered several theoretical questions as well as established the validity of the experimental inductions. The second experiment was our original third study, as proposed, with one notable addition. At the suggestion of the scientific program liaison officers and with the invitation of the researchers at the U.S. Army Research Institute Field Unit at Ft. Huachuca, Arizona (now a part of the U.S. Army Research Lab), we included an additional sample of expert participants recruited from the instructors at the U.S. Army's Human Intelligence School at Ft. Huachuca. For our third experiment on types of deception, we obtained the cooperation of Dr. Janet Bavelas at the University of Victoria (Canada) to conduct a secondary analysis of five of her experiments on equivocation. This permitted us to compare directly findings from our contracted research to her results and to further establish the validity of our experimental induction. Another modification to our original proposed research plan was to conduct an experiment that compared the honesty judgments of outside observers to the judgments of the experimental participants in Experiment 1 to further support our fundamental argument that interactive deception departs from noninteractive deception, again with the blessing of our scientific liaison officers. These changes yielded the following experiments:

- Experiment 1a: Investigation on effects of probing, deception, relational familiarity, and suspicion on interaction behavior
- Experiment 1b: Comparison of participant and observer judgments of honesty
- Experiment 2: Test of effect of deception, relational familiarity, and suspicion on interaction behavior
- Experiment 3a: Initial investigation of behavioral differences associated with falsification, equivocation, and concealment
- Experiment 3b: Investigation of effect of deception type, relational familiarity, suspicion, and expertise on interaction behavior
- Experiment 4: Secondary analysis of Bavelas' experiments on the behavior of communicators who equivocate

Format of Report

This report presents an executive summary of the findings from the contracted research. Inasmuch as articles presenting the specific findings from the experiments have already been published, are in press, or are under review for publication in academic journals and books, a detailed description of experimental findings is not presented. Instead, for each experiment, we provide an overview the purpose and rationale and then summarize the information presented in each of the manuscripts that have arisen from that experiment. The full citations for all of these manuscripts are provided in the text of this report. Readers should refer to the academic journals for copies of those which are already published or in press. A copy of the manuscripts that are currently under review is included in an appendix to this report.

One of the most important outcomes of the contracted research was the formalization of a theory explaining how deception is transacted in interpersonal exchanges. Interpersonal Deception Theory, as we have labeled it, provides an organizing structure for understanding the results of the contracted

research. Thus, we will first review the assumptions and propositions from this theory.

Interpersonal Deception Theory

At heart, IDT is an attempt to predict and explain deception within interpersonal and interactive contexts. As such, it is founded on 25 assumptions about the nature of interpersonal communication and deception and 18 propositions from which hypotheses can be derived. These are described more fully in Buller and Burgoon (in press; see also Buller & Burgoon, 1994; Burgoon & Buller, 1994a, 1994b) and are presented in capsule form here.

Assumptions

The assumptions fall into two sets: Those regarding interpersonal communication and those regarding deception. The assumptions regarding interpersonal communication articulate the criteria attributes of interpersonal communication: active participation by both senders and receivers, simultaneous encoding and decoding tasks, multifunctionality, multidimensionality, multimodality, high immediacy, high information value, and concomitant strategic and nonstrategic behavior. Additionally, interaction processes are assumed to be moderated by individual differences, by relationship factors, and by cognitions (expectations, interpretations, and evaluations) related to behaviors. Key among the latter is credibility, which is assumed to serve as a fundamental evaluative schema that guides senders' and receivers' own message production and their judgments of others' communication.

Further assumptions related to interpersonal communication concern the interaction and information-processing demands associated with it. Because of the multiple functions and tasks that must be accomplished, interpersonal communication is assumed to be cognitively demanding. This results in information processing selectivity and significant variance in people's communication skills. Finally, it is assumed that interpersonal communication invokes a host of expectations about communicators and their messages, that violations of these expectations are recognized, and that an attentional shift prompted by such violations results in an interpretative and evaluative appraisal process. Thus, meanings and attributions are highly salient factors in ongoing interactions.

The foregoing assumptions relate to interpersonal communication regardless of whether or not deception is present. Additional assumptions pertain to actual or perceived deception. Actual deception is a sender variable. It occurs when a sender knowingly transmits a message intended to foster a false belief or conclusion by the receiver. Perceived deception is a receiver variable and can be equated with suspicion. It is a belief held with inadequate proof or certainty that a sender may be dishonest or untruthful. Deceptive messages (or ones attributed to be deceptive) are assumed to contain three parts: the central deceptive message that contains the untruthful propositional content, ancillary behaviors (often nonverbal or stylistic) intended to bolster the credibility of the message or protect the sender's image in case of detection, and unintended behaviors that leak deceptive intent or the true state of affairs.

Because deceptive messages may have multiple goals (instrumental, relational, and/or identity-promoting), and because such goals must be met in the midst of accomplishing other communication functions (such as conversation management, emotion management, identity and impression management, social influence, and relational communication), deception is assumed to be a particularly cognitively complex task for senders. The same is true of deception detection. If receivers become suspicious, they must add detection to their other conversational goals and tasks. For both, then, feedback becomes especially crucial. Senders must be alert to any receiver cues that their deception is succeeding or failing and, in the latter case, must use the feedback to guide subsequent behavioral adjustments. Receivers likewise must be alert to sender awareness of their suspicion and to the success of their own detection efforts.

Final assumptions regarding deception and deception detection are that they engender cognitive

and emotional responses (such as motivation, arousal, and negative affect) and that these responses are manifested in behavior. As such, the effects of deception and detection are discernible through sender and receiver verbal and nonverbal activity.

Propositions

The foregoing assumptions are the warrants for the IDT propositions, which offer a depiction of how and why interpersonal deceptive encounters transpire. The process itself is embedded within a given communication context and relationship. Thus, IDT begins by postulating the effects of context interactivity and relational familiarity on deceptive interactions. To begin, the degree of interactivity or "interpersonalness" is posited to alter deceptive cognitions and behaviors. In summary, when contexts are highly immediate, interactants are "engaged" with one another, all information modalities are available, conversational task demands are high, and communication is largely spontaneous (rather than rehearsed or scripted), receivers should be especially inclined to view senders as truthful (given that truth and positivity biases are among the expectations attending interpersonal communication), they should be less attentive to deception cues (due to selectivity processes and other competing conversational demands), and thus they should be less suspicious than those in less interactive or interpersonal contexts. (This is just one example of the hypotheses that can be generated from the general proposition about interactivity effects.) Similar effects are posited for relational familiarity--the more two people know one another, the more they should exhibit truth biases, selectivity, and low suspicion (assuming that the relationship is not a negative one).

Next come preinteraction factors that are posited to impinge on the process from the outset. The salient factors include cognitions (such as motivations, goals, and expectations) and individual behavioral repertoires and skills that senders and receivers bring to the interaction. For example, the sender's goal may be to tell half-truths by equivocating so as to minimize guilt about dissembling, fear of detection, and possible damage to the relationship if caught. The sender's behavior should manifest multiple strategic and nonstrategic elements: at the strategic level are intentional efforts to manage image, control ancillary behaviors, and manipulate information in the central message; at the nonstrategic level are inadvertent signals of arousal, negative affect, and impaired performance that "leak out." Senders should also vary in their skill in managing their performance and suppressing leakage cues, with the most socially skilled being most successful at initially creating a truthful demeanor.

Receivers in turn bring their own goals and demeanor to the interaction. If they are nonsuspicious, their demeanor should signal that they believe the sender. If, however, they have been induced to be suspicious, their initial behavioral display may intentionally or unintentionally reveal that suspicion.

IDT posits that sender and receiver initial behavioral displays will exert mutual influence. In circumstances where receivers are not suspicious or mask their suspicion effectively, senders' initial fear of detection, arousal, and the like should dissipate, enabling senders to gain greater strategic control of their presentation as the interaction unfolds. Over time, for example, any leaked negative affect should be replaced by positive signals that foster a favorable image, and performance decrements such as nonfluencies, long response latencies, and self-touching should disappear. Receiver interaction style may also affect sender style directly. If receivers adopt a highly immediate nonverbal demeanor, senders may reciprocate unconsciously and as a consequence look very open and honest. To the extent that senders are able to adjust their performance over time to approximate a normal, truthful demeanor, receivers should come to judge senders as believable and thus fail to detect deception.

In other circumstances, receivers may choose to reveal their suspicions or may accidentally "telegraph" their skepticism to senders. If senders are able to use the feedback to craft more credible presentations, the net result may still be poor receiver detection accuracy and favorable evaluations of sender credibility. However, if the receiver adopts an intimidating interaction style or overtly

expresses doubt, it may fluster the sender, ironically causing even truthful senders to look deceptive. The iterative process of cognitive and behavioral adjustments between sender and receiver ultimately should determine the outcome of the interaction.

This depiction of interpersonal deception is displayed in Figure 1 and can be stated formally in the following 18 propositions:

- P1: As the communication context increases in (a) immediacy, (b) full channel access, (c) conversational demands, (d) spontaneity, and (e) relational engagement, sender and receiver cognitions and behaviors during deceptive encounters change.
- P2: As relationships vary along such features as familiarity and valence, sender and receiver cognitions and behaviors during deceptive encounters change.
- P3: Expectations for honesty are positively related to degree of context interactivity and positivity of the relationship between sender and receiver.
- P4: When senders' goal is to deceive, initial sender detection apprehension is inversely related to expectations for honesty.
- P5: Receiver initial suspicion is inversely related to degree of context interactivity and relationship positivity.
- P6: Compared to noninteractive deception, interactive deception results in: (a) greater strategic activity (information, behavior, and image management) and (b) reduced nonstrategic leakage (arousal, negative and damped affect, noninvolvement, and performance decrements) over time.
- P7: Goals and motivations affect strategic and nonstrategic behavior.

Subproposition 7a: Senders deceiving for self-gain exhibit strategic activity and more nonstrategic leakage than senders deceiving for other-benefit.

Subproposition 7b: Receivers' initial behavior patterns are a function of (a) their priorities between instrumental, relational, and identity objectives and (b) their initial intent to uncover deceit.

- P8: As receivers' informational, behavioral, and relational familiarity increase, deceivers exhibit more strategic information, behavior, and image management but also more nonstrategic leakage behavior.
- P9: Skilled senders better convey a truthful demeanor than unskilled senders.
- P10: Initial and ongoing receiver detection accuracy are inversely related to (a) receiver truth biases, (b) context interactivity, (c) and sender encoding skills; they are positively related to (d) informational and behavioral familiarity, (e) receiver decoding skills, and (f) deviations of sender communication from expected patterns.

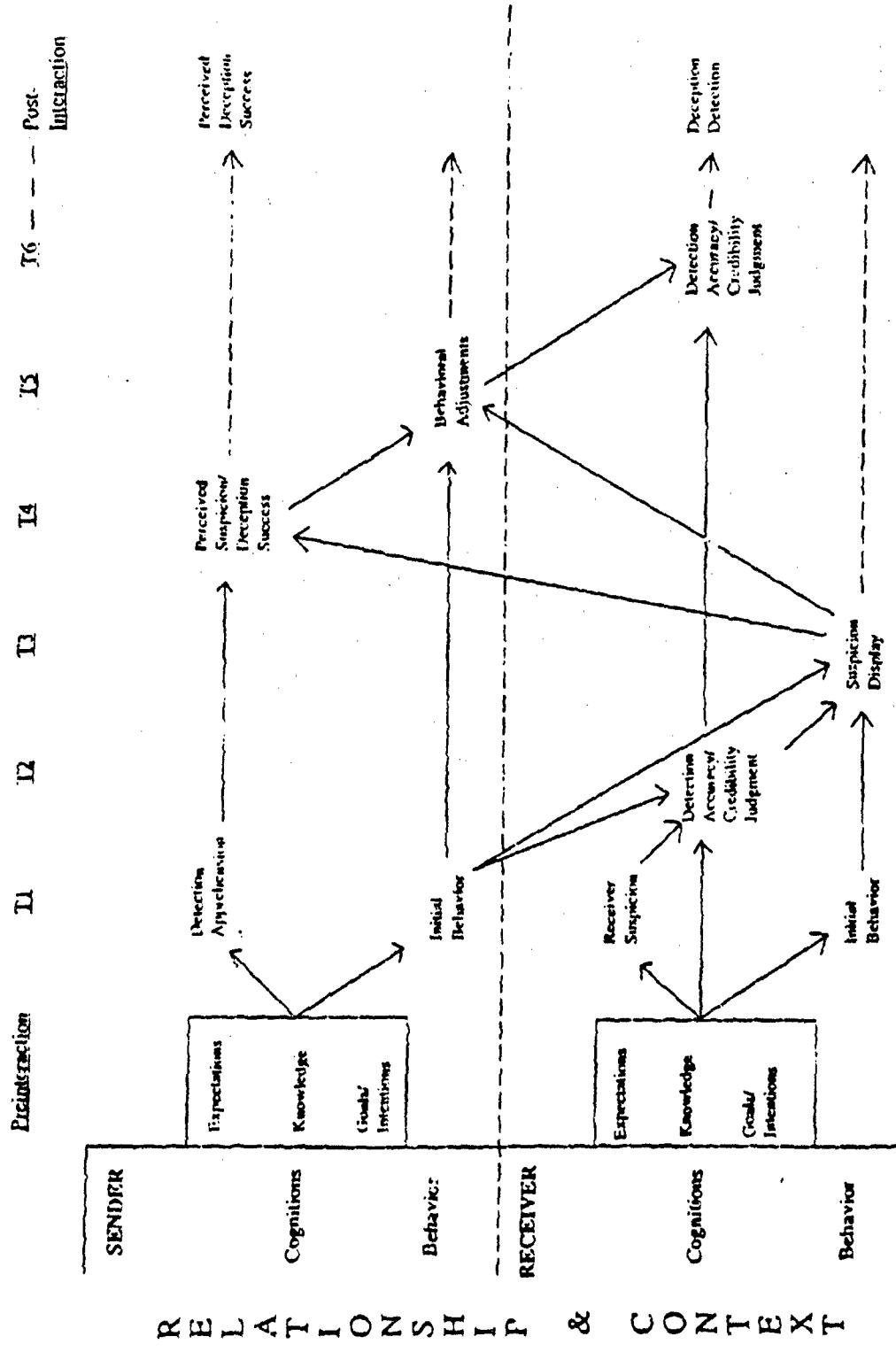


Figure 1: Interpersonal deception theory

P11: Initial and ongoing receiver judgments of sender credibility are positively related to (a) receiver truth biases, (b) context interactivity, (c) and sender encoding skills; they are inversely related to (d) informational and behavioral familiarity, (e) receiver decoding skills, (f) deviations of sender communication from expected patterns.

P12: Receiver suspicion is manifested through a combination of strategic and nonstrategic behavior.

P13: Senders perceive suspicion when it is present.

Subproposition 13a: Deviations from expected receiver behavior increase perceptions of suspicion.

Subproposition 13b: Responses from receivers signalling disbelief, uncertainty, or the need for additional information increase perceptions of suspicion in deceptive senders.

P14: Suspicion (perceived or actual) alters sender behavior.

P15: Deception and suspicion displays change over time.

P16: Reciprocity is the predominant interaction adaptation pattern between senders and receivers during interpersonal deception.

P17: Receiver detection accuracy, bias, and judgments of sender credibility following an interaction are a function of (a) terminal receiver cognitions (suspicion, truth-biases), (b) receiver decoding skill, and (c) terminal sender behavioral displays.

P18: Sender perceived deception success is a function of (a) terminal sender cognitions and (b) terminal receiver behavioral displays.

It should be noted that the theory is still evolving and doubtless will be expanded and modified as additional tests are undertaken. To test these propositions, we undertook five experiments (labelled 1a, 1b, 2, 3a, 3b, & 4). What follows is a description of each experiment and an executive summary of the publication or manuscript summarizing the findings related to it.

Experiments 1A and 1B

Rationale and Method

The first experiment utilized a 2 (relationship type: stranger, friend) x 2 (suspicion: suspecting, unsuspecting) x 2 (probing, nonprobing) x 2 (truth, deception) design. This experiment was designed to focus on receivers and their effects on communication. This focus allowed us to investigate how suspicion and probing affect the sender's behavior, and how suspicion is encoded by receivers. This experiment also allowed us to later compare observers' perceptions with those of active participants.

Pairs of undergraduate students ($N = 210$ dyads) participated in this study and were assigned roles of sender (interviewee) or receiver (interviewer). Of these dyads, 118 were composed of friends and 92 were composed of strangers. Receivers were randomly assigned to one of four conditions: (1) suspecting, probing, (2) suspecting, non-probing, (3) nonsuspecting, probing, and (4) nonsuspecting, non-probing. In all four conditions, the experimenter walked into a kitchen (where s/he would be seen by the receiver but not the sender). Receivers in the "probing" condition were told that this walk-through signalled that they should begin asking questions. Those in the "suspecting" condition were told that the walk-through signalled that the source might be lying. (For

those in the suspecting, probing condition, the induction involved telling subjects to ask questions to confirm the experimenter's suspicion that the sender was lying). While the receiver was given these instructions, the sender was asked to give either truthful or deceptive answers to the receiver's questions. Interviews, which consisted of a series of true/false questions, were videotaped. Participants also completed several pre- and posttest measures, which are described in Buller, Strzyzewski, and Comstock (1991).

Results: Deceivers' Reactions to Suspicion and Probing

Buller, D. B., Strzyzewski, K. D., & Comstock, J. (1991). Interpersonal deception: I. Deceivers' reactions to receivers' suspicions and probing. *Communication Monographs*, 58, 1-24.

Experiment 1 addressed how (1) receivers communicated suspicion and (2) how deceivers reacted to the receiver suspicion and probing. Results showed that suspicious receivers asked less skeptical questions than nonsuspicious receivers, perhaps because suspicious receivers attempted to hide their skepticism from senders. However, the nonverbal behavior of suspicious receivers indicated that they were more cognitively active than nonsuspicious receivers, probably because they were busy assessing the degree of honesty present in the sender's communication. Even though suspicious receivers encoded less skeptical probes than nonsuspicious receivers, if the sender was deceiving, receivers used more skeptical probes than if the sender was telling the truth. Senders were aware of receiver suspicion and became more positive and appeared less nervous if the receiver suspected them. Senders who encountered suspicious, probing receivers exhibited the greatest increase in positive affect and suppression of nervousness. These results suggest that probing may be an ineffective strategy for detecting deception, particularly when the probes belie receiver suspicion. Neither probing nor suspicion improved deception detection overall. Relational familiarity (friends versus strangers) moderated some effects, with friends demonstrating that they were more sensitive to suspicion than strangers, but familiarity did not improve detection.

Results: Participant versus Observer Perceptions

Buller, D. B., & Hunsaker, F. (in press). Interpersonal deception: XIII. Suspicion and the truth-bias of conversational participants. In. J. Aitken (Ed.), *Intrapersonal communication processes reader*. Westland, MI: Hayden-McNeil.

The videotaped interactions from Experiment 1 also provided an opportunity to contrast the interpretations of conversational behavior made by conversational participants with those experienced by observers. Such comparisons are at the crux of IDT and our claim that interactive deception (participant-based) is fundamentally different from noninteractive deception (observer-based). In particular, conversational demands (e.g., encoding and decoding of messages, conversation management) and relational aspects of face-to-face interactions interfere with attention to, and processing of, messages, yielding biased interpretations. We reported on these differences in a study that predated the contracted research (Buller, Strzyzewski, & Hunsaker, 1991). Compared to observers, conversational participants attributed more truth to senders, were less accurate deception detectors, and relied on facial rather than vocal cues when forming their interpretations.

Experiment 1b, utilizing the 92 videotaped interactions between strangers from Experiment 1a, was designed to replicate these earlier findings and investigate whether the truth-bias and channel reliance of participants was altered by suspicion. Ninety-two undergraduate students acted as observers. Each watched one of the videotaped interactions, after receiving the suspicion induction that corresponded to the suspicion condition to which the receiver (i.e., conversational participant) was assigned in Experiment 1a. Observers completed the same posttest as receivers in Experiment

1a. As expected, participants attributed more honesty to both truthtellers and deceivers than did observers. This truth-bias persisted even when participants were informed following the posttest that deception had been manipulated in the experiment. Participants, though, were no less accurate at detecting deception, perhaps because senders' anti-detection strategies in the conversations in Experiment 1a misled observers. Suspicion had little impact on participants' truth-bias, but it did produce a lie-bias in observers. Participants, once again, showed a facial primacy when evaluating sender veracity, but their channel reliance was not affected by suspicion.

Experiment 2

Rationale and Method

The second experiment tested several IDT principles directly. It focused on suspicion and nonverbal behavior in deceptive and truthful interactions, the distinction between strategic and nonstrategic behavior, and the dyadic, dynamic, differences in deception between acquainted and unacquainted pairs, and the dynamic, interactive nature of deceptive episodes. Undergraduate students ($N = 240$) interacted with friends or strangers, resulting in 63 friend dyads and 57 stranger dyads. These dyads were videotaped as they discussed their personal beliefs and/or values, with one member of the dyad randomly assigned the role of interviewer (receiver) and the other assigned the role of interviewee (sender). Interviewers were randomly assigned to one of three suspicion conditions (low, moderate, or high). Half of the interviewees were asked to tell the truth when answering all questions. The other half were told to lie as convincingly as possible after the fifth question. Both participants completed several posttests regarding their own behavior and their partner's behavior during the interaction. Coders then viewed the videotapes and rated both the interviewers' and interviewees' behavior. The deception and suspicion results were reported separately.

Results: Effects of Deceit on Perceived Communication and Nonverbal Behavior

Burgoon, J. K., & Buller, D. B. (1994). Interpersonal deception III: Effects of deceit on perceived communication and nonverbal behavior dynamics. *Journal of Nonverbal Behavior*, 18, 155-184.

Dependent measures included in this report were (1) participant (sender and receiver) perceptions, interpretations, and evaluations of sender behaviors and (2) trained coders' rating of sender's actual nonverbal behaviors. Consistent with IDT, deceivers were more uncertain and vague, more nonimmediate and reticent, showed more negative affect, displayed more arousal and noncomposure, and generally made a poorer impression than truthtellers. Their behaviors also connoted greater formality and submissiveness. Also consistent with IDT's premise that deceptive interactions are dynamic, deceivers' became more kinesically relaxed and pleasant over time, in line with a behavior and image management interpretation, and degree of reciprocity between sender and receiver nonverbal behaviors was affected by the presence of deception and suspicion.

Results: Effects of Suspicion on Perceived Communication and Nonverbal Behavior Dynamics

Burgoon, J. K., Buller, D. B., Walther, J., & Dillman, L. (1994). Interpersonal deception: IV. Effects of suspicion on perceived communication and nonverbal behavior dynamics. Paper in submission to *Human Communication Research*.

One key element of IDT is the role of receiver suspicion in prompting behavioral changes on the part of both sender and receiver. Hypotheses tested in this report were: (1) receivers perceive deception when it is present, (2) suspicious receivers who decide not to confront their partners exhibit

more pleasantness, more arousal and nervousness, and less competent communication performances than nonsuspicious interactants, (3) senders (whether truthtellers or deceivers) perceive suspicion when it is present, and (4) suspicion produces decreased positive affect, increased arousal and nervousness, and less competent communication performances for both deceivers and truthtellers. Results confirmed that suspicion and deceit were perceived when present. As hypothesized, suspicion was manifested through nonverbal behavior changes. Moderately suspicious ERs were the most nonimmediate, unpleasant, and kinesically aroused but fluent and smooth in turn-taking; highly suspicious ERs were kinesically pleasant, immediate, and unaroused but the least fluent and smooth. Suspicious ERs were also seen as more dominant and uncomposed and their behavior was judged as unexpected and undesirable. Suspicion also affected the behavior of suspects. EEs' and ERs' reports indicated that suspicion increased arousal, reduced pleasantness, impaired communicative performance, elicited vagueness/uncertainty, decreased immediacy, and created impressions of nonreceptivity. But coded nonverbal behavior showed suspects under high suspicion were fluent and pleasant, possibly because they reciprocated the interaction style of ERs. These patterns held for both truthtellers and deceivers. Initial impairments in kinesic or vocalic behavior tended to disappear over time, in line with a behavioral management interpretation. Additionally, participants showed behavioral matching that differed depending on suspicion level. Finally, relational familiarity moderated some behaviors.

Experiments 3A and 3B

Rationale and Method

Experiments 3a and 3b were designed to investigate how communication differs across three verbal types of deception--concealment, equivocation, and falsification. Several researchers (e.g., Bradac, 1983; Hopper & Bell, 1984; Turner, Edgley, & Olmstead, 1975) have argued that it is necessary to broaden the construct of deception beyond lying (or falsification). According to IDT, deception type may directly affect or moderate the language and nonverbal behavior that accompanies deception. Experiments 3a and 3b also focused on preinteractional factors such as social skills, interactional factors such as anxiety, deception/detection success, and nonverbal behavior. Preinteractional factors are those predispositions or personality traits that individuals bring with them to the interaction. IDT proposes that social skill is an important preinteractional factor: Those who are socially skilled are likely to engage in strategic impression management leading to judgments of believability, while those who are less skilled are likely to leak anxiety and negative affect. As the interaction unfolds, interactional factors such as anxiety, the difficulty of continually lying, and perceptions of partner-suspicion are likely to influence how successfully one can deceive. In these experiments, deception success was defined more broadly than in past studies. Specifically, deception success was defined as being positively related to perceptions of sender believability and receiver truth bias, and as being negatively related to accuracy (with a small discrepancy between sender and receiver judgments of truthfulness representing accuracy, and a large discrepancy representing inaccuracy).

These issues were addressed by first conducting a pilot experiment (3a). A pilot experiment was deemed necessary to test whether the three deception types--concealment, equivocation, and falsification--could be enacted successfully by participants. In this experiment, 40 adults from the community were recruited to participate in exchange for interview skills training. These participants completed social skills measures before arriving at the research laboratory. Each participant engaged in two eight-minute interviews with two different interviewers. (Four trained interviewers were used in all.) Participants were asked to be completely truthful during the first interview. For the second interview, participants were instructed to answer truthfully to the first two questions, but then to either (a) conceal, (b) equivocate, (c) falsify, or (d) deceive in any manner they wished. This last condition, termed the "general deception" condition, was included so that we could see which

deception form is enacted in response to a nonspecific deception induction. At the conclusion of the second interview, participants completed posttest measures asking them to rate their behavior and feelings during the second interview. Later, trained coders watched videotapes and rated the interviewees' communication.

Experiment 3b was similar in many respects, yet there were four important differences between Experiments 3a and 3b. First, in 3b, experimental participants served as interviewers as well as interviewees. Second, participants in 3b only engaged in one interview, answering truthfully to the first three questions, and then concealing, equivocating, or falsifying on the remaining questions. Third, the general deception condition was omitted in 3b. Finally, the 3b sample consisted of two groups: (1) experts ($N = 60$) from the Ft. Huachuca Human Intelligence School who had experience in tactical/strategic interrogation and/or interviewing, and (2) novices ($N = 72$) who were drawn from the Tucson community at large.

Participants in 3b completed social skills tests prior to reporting to the research site. Upon arrival, participants were assigned the roles of interviewer and interviewee. Half the interviewers were induced to be suspicious. When the interview was concluded, both participants completed questionnaires asking them to report on their own and their partner's behavior during the interaction, and to rate the level of truthfulness that they felt characterized the interviewee's answers to each of the questions.

Several reports resulted from Experiments 3a and 3b. Some presented data from both experiments while other concentrated on issues that were specifically addressed in one experiment but not the other (e.g., comparisons between experts and novices). We begin with those that detail interaction behaviors and then turn to those addressing interaction outcomes.

Results: Behavioral Profiles of Deception Types

Buller, D. B., Burgoon, J. K., White, C., & Ebisu, A. (in press). Interpersonal deception: VII. Behavioral profiles of falsification, concealment, and equivocation. Journal of Language and Social Psychology.

Previous research on deception has typically examined how deceivers behave when falsifying information in a noninteractive context. Guided by IDT, we proposed that deception may take a variety of forms, reflecting differences in the way senders strategically control message information and differences in the behavioral profiles accompanying those strategies. The current experiment examined the impact of deception type (falsification, concealment, equivocation), deceiver planning, receiver suspicion, receiver expertise, and relational familiarity on strategic and nonstrategic behavior. Results failed to show a clear behavioral profile for deception in general. Instead, behaviors associated with deception were strongly influenced by deception type, suspicion and familiarity, suggesting that preinteractional and interactional features are important determinants of sender behavior. Of the deception types, participants rated equivocation as most brief, vague, and hesitant, possibly reflecting overmanagement of information, while falsification was rated lowest on these characteristics. Behaviorally, senders were best able to suppress behavioral activity when equivocating and least able to when falsifying. The arousal created by different types of deception may have influenced senders' ability to manage behavior and image.

Results: The Language of Interpersonal Deception

Buller, D. B., Burgoon, J. K., Buslig A., & Rolger J. (in press). Interpersonal deception: X. The language of interpersonal deception. Communication Theory.

This report analyzed data from Experiments 2, 3a, and 3b to provide a profile of the verbal

behavior that characterizes deceptive communication. Using IDT as a predictive framework, it was expected that language choice in deceptive messages would reflect (a) strategic attempts to manage information and behavior through indirect, nonimmediate, and vague responses and (b) nonstrategic leakage of anxiety through humor. The linguistic profiles associated with three forms of deception—concealment, equivocation, and falsification—were compared. Finally, the moderating effects of two preinteractional factors—prior planning and familiarity (e.g., relational familiarity and detection expertise)—and an interactional factor—suspicion—on verbal behavior during deception were explored. Preliminary analyses showed greater verbal nonimmediacy when deceiving. Senders used less verbal immediacy and humor when equivocating than when falsifying or concealing information. Suspicion provoked both more nonimmediate and more immediate forms of language. As hypothesized, deceptive responses contained more indirect, nonimmediate, and vague language and more humor. Senders were more verbally immediate when given the opportunity to plan or when facing an expert interviewer. Suspicion also stimulated more immediate language.

Results: Behavioral Profiles Associated with Receiver Suspicion

Burgoon, J. K., Buller, D. B., Ebisu, A., White, C., & Rockwell, P. (in press). Interpersonal deception: XI. Effects of suspicion on nonverbal behavior and relational messages. Communication Theory.

In this report, the effects of (a) sender behavior on receiver suspicion and (b) receiver suspicion on receiver and sender nonverbal behaviors were analyzed. It was hypothesized that receivers are more suspicious when senders exhibit (a) less pleasantness, (b) less involvement, (c) more arousal and nervousness, and (d) less competent performances. While receivers were actually more suspicious when senders displayed less overall pleasantness and involvement, they were also more suspicious when they engaged in prolonged smiles, were fluent but had less precise articulation, and engaged in less rather than more random movements. Greater sender dominance and poorer performances also triggered more suspicion. It was also hypothesized that, compared to nonsuspicious receivers, suspicious receivers display more dominance, noncomposure, and performance decrements. Of the hypothesized behaviors, results only supported that suspicious ERs tended to be more tense kinesically (noncomposed). However, suspicious ERs also tended to talk longer, be more immediate, and to use longer (perhaps false) smiles. Observers saw their behavior as conveying less pleasantness; partners saw their behavior as conveying more positive affect, perhaps due to the smiles and immediacy. A third hypothesis, that senders recognize suspicion when it is present, was supported. The type of deception that prompted the least suspicion concealment (compared to falsifications and equivocations). The final hypothesis, that suspicion affects sender nonverbal displays, received mixed support. Overall, the results overall indicate that suspicion plays a crucial role in affecting both sender and receiver communication.

Results: Information Dimensions Underlying Deception Types

Burgoon, J. K., Buller, D. B., Guerrero, L. K., Afifi, W. A., & Feldman, C. M. (in press). Interpersonal deception: XII. Information management dimensions underlying types of deceptive messages. Communication Theory.

This report focused on conceptually and empirically delineating information management dimensions underlying deceptive communication by analyzing data from both Experiment 3a and 3b. Five fundamental dimensions were proposed for study: (1) completeness (informational and conversational), (2) veridicality (actual and apparent), (3) directness/relevance, (4) clarity, and (5) personalization. Results from both experiments confirmed that deceptive communication is less

complete, honest (veridical), direct/relevant, clear, and attributable to the speaker than truthful communication. Results from the main experiment also indicated that falsifying deceivers reported the least veridicality but observers did not detect any differences in veridicality across deception types. Observers did see falsification as the most conversationally and informationally complete and equivocation as the least direct/relevant, least clear, and lowest on personalization. Equivocating deceivers rated their answers as lower on clarity and directness than did falsifying or concealing deceivers. These findings are discussed in light of Buller and Burgoon's IDT and McCornack's Information Manipulation Theory.

Results: Accuracy in Deception Detection

Burgoon, J. K., Buller, D. B., Ibesu, A., & Rockwell, P. (in press). Interpersonal Deception: V. Accuracy in deception detection. Communication Monographs.

Previous research on accuracy in deception detection has typically occurred in a noninteractive context, which has resulted in many potentially salient influences being ignored. Experiment 3b examined the influences of suspicion, deception type, question type, relational familiarity, and expertise on accuracy in detecting truth and deceit. An adult sample of novices and a second sample of experts (military intelligence instructors and related military personnel) participated in interviews with strangers or acquaintances during which interviewees gave some truthful answers and some deceptive answers, the latter being one of three types. Interviewers followed a standard interview protocol that introduced different question strategies. Results showed that (1) accuracy was much higher on truth than deception, (2) novices were more accurate than experts, (3) accuracy depended on type of deception being perpetrated and whether suspicion was present or absent, (4) suspicion impaired accuracy for experts, (5) truth-biases intensified with familiar others, especially when interviewers were suspicious, and (6) question strategy ameliorated or aggravated inaccuracy.

Results: Preinteractional and Interactional Factors Influencing Deception Success

Burgoon, J. K., Buller, D. B., Guerrero, L. K., & Feldman, C. M. (1994). Interpersonal deception: VI. Viewing deception success from deceiver and observer perspectives. Paper in submission to Communication Studies.

IDT posits that deceptive encounters and their outcomes must be studied interactively and should take into account both deceiver and receiver activity. Past research on deception success has focused on receiver or observer judgments, ignoring deceiver perceptions, which may influence the ways deceivers choose to interact. This study investigated how several preinteractional and interactional factors affect both deceiver and observer perceptions of deception success.

Preinteractional factors included three that have been found relevant to the deception process: social skill, self-monitoring ability, and motivation. Interactional factors included those proposed by Zuckerman and Driver's (1985) four-factor theory of deception (anxiety, affect, task difficulty, and behavioral control) as well as receiver suspicion and deception type. Results indicated that deceivers' perceptions of success were most affected by all the interactional factors (especially anxiety, interaction difficulty, and conversational normality). Conversely, observers were more affected by preinteractional factors such as deceiver social skill. Only conversational normality affected both deceivers' and observers' assessments of success: The more natural and expected the communication behavior, the more believable. These results underscore the importance of self-presentation skill, and the discrepancy between deceiver and observer perspectives suggests that skillful deceivers are able to mask their internal states and/or to use feedback to create more credible performances.

Results: Social Skills, Nonverbal Communication, and Deception Success

Burgoon, J. K., Buller, D. B., Guerrero, L. K. (in press). Interpersonal deception: VIII. Effects of social skill and nonverbal communication on deception success and detection accuracy. *Journal of Language and Social Psychology*.

IDT posits that socially skilled individuals are better able to project truthful demeanors and evade detection than are unskilled individuals. IDT also predicts that social skills benefit receivers, making them better able to detect deception. Past research by Riggio and colleagues (Riggio, Tucker, & Throckmorton, 1987; Riggio, Tucker, & Widaman, 1987) has shown that socially skilled individuals emit nonverbal behaviors that enhance believability. This study extended Riggio's findings by investigating how social skills and nonverbal communication work in concert to predict three forms of detection/detection success: believability, accuracy, and bias. Results confirmed that as sender social skills increased, believability increased and receiver detection accuracy decreased, especially during equivocation. Skilled senders were more fluent and less hesitant. Senders were more believable, and truth biases were higher, if senders displayed greater involvement, positive affect, fluency, and composure and used a concealment strategy. Hesitancy was also implicated in a complex way. Only one dimension of receiver skill improved accuracy. Receivers were also more accurate if senders were less fluent.

Experiment 4

Rationale and Method

Experiment 4 was undertaken to (a) replicate the information characteristics and behavioral profile associated with equivocation described in Experiment 3a and 3b, (b) further describe the behavioral differences between equivocation and falsification, (c) provide a more direct comparison between the results in Experiments 3a and 3b with results from earlier research on equivocation by Bavelas, Black, Chovil, and Mullett, and (d) establish the validity of the experimental inductions that created equivocal responses in Experiments 3a and 3b.

Of the alternative modes of deceiving, equivocation—ambiguous, tangential, obscure, contradictory, and evasive communication—holds special significance. Not only has it received more attention than any other strategy other than falsification, but it may be a more common strategy than lying in everyday interactions (Bavelas et al., 1990). Drawing on Kurt Lewin's conflict theory, Bavelas et al. propose that when faced with a situation where both the telling truth and telling a lie are undesirable actions, senders experience conflict. Moreover, choosing one option, say lying, over the other increases the negative valence of that option and causes senders to opt instead for the truth. However, that option also is negatively valenced producing another switch to lying and so on. Thus senders responses end up being equivocal. In a series of 19 investigations, Bavelas et al., not only supported their conflict theory of equivocation, but also provided evidence suggestive of a behavioral profile of equivocation.

Unfortunately, there were important differences between Bavelas et al.'s work and Experiments 3a and 3b that made comparisons somewhat difficult. Specifically, Bavelas et al. (a) performed less extensive micro-analysis of verbal and nonverbal behavior on (b) shorter interactions containing (c) equivocal replies that were produced by placing the sender in a state of conflict (unlike our experiments that simply instructed senders to equivocate without the conflict).

Through our longstanding relationship with Dr. Janet Bavelas at the University of Victoria (Canada), we gained permission to conduct further analyses on the experimental stimuli from five of her experiments. These experiments contained adult participants and were either recorded on audiotape or videotape. One was conducted in a field setting, another contained a within subjects manipulation, and a third included a falsification condition along with truth and equivocation. The

general format of these five experiments was to provide the sender with information about an object (e.g., a car that was for sale, a speech given by a fellow student, a play). Senders were, then, asked about the object by an experimental confederate. Depending on the nature of the initial information, the question produced either a conflict or no conflict condition. For example, in the car scenario, participants were given a mechanical checklist and a photograph of a car either in good (no conflict) or poor (conflict) condition. They were to imagine that they were trying to sell the car to their brother's friend speaking to them over the telephone. Participants received a telephone call from an experimental confederate playing the role of brother's friend who asked, "What kind of SHAPE is the CAR in?" and their replies were recorded. The field experiment differed in that no information was initially supplied to participants. Rather, supporters of one of two candidates for head of a political party were approached at the party's convention and asked if they thought the party could win the next election under the leadership of the candidate which they did not support.

Trained coders recorded participants' nonverbal and verbal behavior from transcripts, audiotapes, or videotapes using perceptual ratings and objective coding. Observers also evaluated the perceived completeness, clarity, directness, ownership, and veridicality of the messages.

Results: Nonverbal and Verbal Correlates of Equivocation

Buller, D. B., Burgoon, J. K., Buslig, A., & Roiger, J. (in press). Interpersonal deception: IX. Further analysis of nonverbal and verbal correlates of equivocation from the Bavelas et al. (1990) research. *Journal of Language and Social Psychology*.

Several comparisons were performed in the secondary analysis. Nonverbal involvement (expressiveness, tension, pleasantness, involvement), dominance, and formality cues, time spent talking, response latency, smiling, nodding, and linguistic immediacy cues (self-references, group-references, levelers, modifiers, past-tense verbs, present-tense verbs) were compared in responses under conflict (i.e., equivocal statements) and nonconflict (i.e., truthful statements). Additionally, equivocal and falsified answers were compared in one experiment. Senders were less clear in the conflict than in the no conflict condition, as would be expected in equivocal responses; however, they alter the personalism of their answers. Equivocal responses were also perceived to be less conversationally complete than truthful replies, similar to the finding in Experiment 3b. Consistent with IDT, senders enacted information management (appearing more withdrawn by encoding less vocal expressivity and dominance) and behavior management (being more kinesically expressive and linguistically immediate). Senders also nonstrategically leaked arousal (more tension cues) and negative affect (less pleasantness) when equivocating. This suggested that behavior management was achieved through interchannel compensation; however, equivocation consequently contained channel discrepancies. The behavioral profile of equivocation did not depart substantially from that associated with falsification. Rather, equivocation and falsification showed a general deception profile of greater kinesic expressiveness, shorter response latencies, and more linguistic immediacy in the experiment comparing truthful, falsified, and equivocal replies. They also did not differ in information characteristics.

Conclusions and Implications

Our four-year funded project on Interpersonal Deception Theory has resulted in fourteen papers, most of which have or soon will be published in communication or psychology journals. The knowledge gained by these studies points to the dynamic nature of interpersonal deception. Both parties, sender and receiver, have the power to influence the course of deceptive communication. As we initially suspected, Interpersonal deception appears to consist of a series of intricate moves and countermoves. Often, the receiver becomes a "deceiver" by hiding suspicions from the partner. Our

program of research also demonstrates that conversational participants perceive a sender's behavior much differently than do observers, indicating that interactive and noninteractive deception differ. Compared to observers, participants overestimate sender truthfulness, perhaps in part to a stronger truth bias. Participants also appear to pay too much attention to facial cues, which are less likely than other cues to leak anxiety and negative affect. This finding indicates that face-to-face questioning can sometimes be disadvantageous. Findings also indicate that deceivers control their behavior, becoming more immediate and pleasant, when they suspect that the receiver is suspicious of their answers. Similarly, receivers often become immediate and pleasant when they are suspicious, presumably to hide their suspicion from the sender and to keep the sender off guard. Such a strategy appears to be effective: Senders are likely to relax and exert less control if they feel that their partner is accepting of their answers. These findings have implications for interviewers and interrogators who may be most successful when portraying an immediate, pleasant, nonsuspecting demeanor.

Our findings also point to several key preinteractional and interactional factors that influence deception success. Social skills appear to be indirectly linked to deception success, with nonverbal and verbal behaviors (such as anxiety and positive affect) more directly linked. Indeed, our program of research demonstrates that deception success is contingent upon managing one's impression through behavioral manifestations of immediacy and pleasantness as well as controlling cues leaking anxiety and negative affect. Deception type may also make a difference, particularly since different information dimensions and different behavioral profiles characterize concealment, equivocation, and falsification. Suspicion is another crucial variable in the deception process. While some level of suspicion may help receivers detect deception, too much suspicion appears to backfire. For example, Burgoon, Buller, Ebesu, and Rockwell (in press) found that expert interrogators were more suspicious than novices, and that a persistent, heightened level of suspiciousness may seriously undermine one's ability to judge veracity accurately. In these cases, a lie-bias may be operating, causing receivers to consistently rate senders as more deceptive than they actually are.

These findings have numerous implications for the U. S. Army in the realms of improved communication credibility, personnel selection and training techniques, intelligence gathering, and the use of new communication technologies. For instance, if deceptive messages are recognized as the flip side of credible ones, then the information obtained on how deception is transacted in interpersonal exchanges also should enable military personnel generally and intelligence personnel specifically to produce more credible public presentations and intelligence reports. For personnel officers and those charged with training new personnel, the findings suggest that communication skills should be used as a selection criterion for human intelligence personnel, both for message senders and receivers. Attempts should also be made to assess judgment biases, in order to avoid interviewers and debriefers those who have chronic suspicion, as well as those with truth-biases. Both will err. It is also important to rethink the value of experience; experience alone is not the best teacher. Periodic refresher training may be needed to counteract judgment biases.

Personnel engaged in intelligence gathering need to be aware of several issues. First, past research on deception and credibility obtained from noninteractive communication may not be applicable to the interactive setting. Interviewers and debriefers operating in interactive environments should be trained to mask skepticism and disbelief while questioning, obtain baseline samples of truthful communication prior to making deception judgments, use unexpected questions but avoid repeating questions unless the interviewee is a stranger, focus on vocal and linguistic rather than facial information, and be aware of strategic behaviors as well as those leaking arousal, negative emotions, and reduced conversational involvement. They should also recognize that interviewees often reciprocate the communication style adopted by interviewers and as a result can appear truthful. Interviewees react and adjust to the actions of an interviewer, so interviewers and debriefers should carefully consider whether to reveal expertise in deception detection. It should help to have truthfulness judgments made by observers rather than interviewers, especially if interviewers are acquainted with the interviewee. Finally, commanders should consider rotating personnel to minimize

familiarity with informants.

Our focus on the differences between interactive and noninteractive communication contexts has implications beyond the laboratory environment. The fundamental principle of interactivity is being transformed by the new micro-multi media such as computer networks, videoconferencing, closed-circuit and low power television, and cellular telephones. As organizations such as the military come to depend on these new media technologies to manage operations in far-flung locations and potentially hostile, crisis environments, it is important for personnel to keep in mind that the new technologies, with all their benefits, have some potential pitfalls for communicators. While micro-multimedia have increased the addressability and interactivity of the media environment, they have, at the same time, decreased the interactivity of many communication exchanges that heretofore took place face-to-face. In so doing, they place limitations on information availability and reduce the immediacy of the sender and receiver in time and space. Our contracted research into deception revealed that these characteristics of noninteractive environments can fundamentally change the communication process associated with sender and message credibility. There is every reason to believe that the lack of interactivity in the new media technologies will yield equally important alterations in other critical communication processes such as information transmission and learning, decision-making quality, and crisis response in command and control and personnel training.

These implications highlight that despite the wealth of information obtained in our contracted research about interpersonal deception, many fundamental theoretical issues remain unresolved. This is especially true inasmuch as IDT represents a paradigm shift for deception research. Our attention in upcoming research will focus on (a) further testing the assumption that interactive deception behaviors and cognitions differ from those in noninteractive deception, (b) comparing mediated to nonmediated communication and synchronous to asynchronous communication, (c) obtaining measures of receiver cognitions during rather than after deceptive interactions to better assess the influence of interaction features on message processing, (d) pursuing the influence of receiver interaction style on deceiver behavior over time, (e) incorporating principles from Interaction Adaptation Theory (Burgoon, Dillman, & Stern, in press) that place expectations and their confirmation as causal mechanisms in interpersonal deception, and (f) further describing the effect of dyadic interaction patterns on detection accuracy.

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Appendix A-1
Manuscripts Under Review for Publication

Interpersonal Deception: IV. Effects of Suspicion on Perceived Communication and Nonverbal Behavior Dynamics

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RUNNING HEAD: INTERPERSONAL DECEPTION

ABSTRACT

Interpersonal Deception Theory (IDT) frames deception as a communication activity and examines deception within interactive contexts. One key element of the theory is the role of suspicion in prompting behavioral changes on the part of both sender and receiver. An experiment testing several suspicion-related hypotheses paired participants (half friends, half strangers) for interviews during which interviewees (EEs) lied or told the truth and interviewers (ERs) were induced to be (moderately or highly) suspicious (or not). Participants rated own and partner communication behavior and trained coders rated actual nonverbal behaviors employed by both. Results confirmed that suspicion and deceit were perceived when present. Suspicion was manifested through nonverbal behavior changes. Moderately suspicious ERs were the most nonimmediate, unpleasant, and kinesically aroused but fluent and smooth in turn-taking; highly suspicious ERs were kinesically pleasant, immediate, and unaroused but the least fluent and smooth. Suspicious ERs were also seen as more dominant and uncomposed and their behavior was judged as unexpected and undesirable. Suspicion also affected the behavior of suspects. EEs' and ERs' reports indicated that suspicion increased arousal, reduced pleasantness, impaired communicative performance, elicited vagueness/uncertainty, decreased immediacy, and created impressions of nonreceptivity. But coded nonverbal behavior showed suspects under high suspicion were fluent and pleasant, possibly because they reciprocated the interaction style of ERs. These patterns held for both truthtellers and deceivers. Initial impairments in kinesic or vocalic behavior tended to disappear over time, in line with a behavioral management interpretation. Additionally, participants showed behavioral matching that differed depending on suspicion level. Finally, relational familiarity moderated some behaviors.

Few would dispute that deception is a communication enterprise and, commonly, an interpersonal one. Yet implicit in much of the deception literature is an individualistic focus, to the neglect of the transactional and communicative nature of deception. Emphasis tends to be on what is happening within and by individual senders (deceivers) or receivers (detectors) rather than between them. Because we believe that interactive deception may differ materially from noninteractive deception, we have begun to develop Interpersonal Deception Theory (IDT; Buller & Burgoon, 1994, forthcoming; Burgoon & Buller, 1994) to predict and explain the nature of interpersonal deceptive transactions. IDT represents a conceptual shift from an individual, intrapsychic, and static orientation to a dyadic, communicative, and dynamic one and with it, concomitant changes in deception research methods. Our interest is in how senders and receivers mutually influence one another's cognitions and behaviors during deceptive or potentially deceptive encounters and how these interactive patterns in turn affect postinteraction outcomes.

The investigation to be reported here represents one in a program of research testing various facets of IDT. The focus here is on the influence of one key factor: receiver suspicion. The potential for mutual influence in interpersonal encounters elevates the receiver's role to more prominent status. Of particular importance is receiver suspicion, which can be seen as the receiver's counterpart to sender's deceit. Apart from the potential for receiver actions to alter deception displays relative to those observed in noninteractive encounters, receiver communication of suspicion merits the same investigative attention as deceiver behavior, as it may affect truthtellers as well as deceivers, influence subsequent interaction patterns, and color judgments of receivers themselves. Consequently, the current experiment examined how receiver suspicion influences receiver and sender communication.

IDT Principles and Hypotheses Related to Receiver Cognitions and Behavior

Participants enter interactions with strong expectations about the communication of others; deviations from those expectancies arouse attention (see, e.g., Burgoon, 1992b; Burgoon & Walther,

1990; Grice, 1989). When sender behaviors deviate from stereotypical "truthful" interaction patterns or from the sender's own prior interaction style, or when they are attributed by third parties to deviate (as in the case of experimental inductions), receivers should recognize that something is amiss and suspicion should be aroused. Suspicion is a state of doubt or distrust that is held without sufficient evidence or proof, i.e., it would fall somewhere in the middle ranges of a certainty continuum. As we conceptualize it, suspicion also usually entails heightened vigilance and motivation to detect truth. The prospect of encountering deceit is discomfiting and should motivate the receiver to be on the alert for deception clues.

Suspicion can only be a factor in interpersonal interactions to the extent that receivers recognize or perceive deceit. In one of the few research programs employing actual face-to-face interaction, Buller and colleagues (Buller & Aune, 1987; Buller, Comstock, Aune, & Strzyzewski, 1989; Buller, Strzyzewski, & Comstock, 1991) confirmed that this happens. Receivers attributed less honesty and trust to deceivers than to truthtellers. The first hypothesis tested in this investigation was therefore intended to replicate the finding that *receivers perceive deceit when it is present (H1)*.

Once made suspicious, receivers should engage in deception detection strategies. Buller and Burgoon (1994) advanced a distinction between strategic and nonstrategic deceiver behavior that we believe is equally useful in predicting how receivers behave when suspicious. Deceivers are posited to employ information, behavior, and image management strategies to craft believable presentations but also inadvertently to depress their conversational involvement, to leak arousal and negative affect, and to suffer impaired communication performance. IDT posits as a general proposition that suspecters likewise manifest suspicion through a combination of strategic and nonstrategic behaviors. The form of suspecters' detection strategies should depend on receivers' goals and the communication context. For example, interrogators may make their doubts explicit, leading them to adopt an intimidating style of questioning, whereas friends in casual conversations may be inclined to keep

their surveillance and information-seeking agenda hidden, leading them to camouflage their suspicions with a pleasant, face-protecting and relationship-protecting demeanor. Strangers interacting for the first time may also adopt this latter approach rather than risk violating politeness norms. In these latter cases, suspecters may not be completely successful at disguising their suspicions and may inadvertently telegraph them to their targets. This nonstrategic behavior may reflect the uncertainty and discomfort that is provoked, the increased conversational demands of framing detection strategies while simultaneously maintaining an ostensibly normal conversation (Ekman & Friesen, 1969), and the resultant impaired communication performance.

Empirical evidence relevant to this speculation is limited but somewhat supportive. In the Buller, Strzyzewski, and Comstock (1991) experiment, which is similar to the one being reported here, suspicious ERs used accepting rather than skeptical probes, laughed more when probing but less when not probing, spoke more rapidly, were less fluent and clear, and exhibited longer response latencies. The accepting probes and laughter appear to be strategic moves to conceal suspicion, while the heightened arousal evident in the response delays, rapid tempo, and nonfluencies appear to be leakage cues. Hence, we hypothesized that in situations where blatant confrontation is eschewed, suspicious receivers exhibit greater (a) pleasantness and (b) immediacy but also greater (c) arousal and (d) impaired communication than nonsuspicious interactants (H2). Here communication performance was expanded to include not just conversation management features such as fluency, coordination of turn-taking, and pauses but also expressiveness, which are additional components of conversational involvement beyond immediacy and social anxiety (see Coker & Burgoon, 1987). We anticipated that impaired communication would include not only reduced fluency, increased response latencies, increased nervous vocalizations, and awkward turn-taking but also reduced expressiveness and global involvement. To further assess communication performance, we also included perceptions of performance acceptability (anticipating that suspicion performances might appear less desirable and

more atypical) and the interpretations associated with suspecter behavior. Because of the absence of any empirical guidance for these latter measures, we addressed as a research question *what implicit meanings senders attribute to suspicion (RQ1)*.

So far, we have proposed that aroused suspicion affects receivers' communication. To the extent that suspicion is manifested overtly—if not through strategic behavioral changes, then through nonstrategic leakage—and interactants are attuned to one another's behavior, then senders, like receivers, should become aware of changes in partner behavior. If suspicion indeed is characterized by certain behavior patterns, then senders, on average, should recognize the presence of suspicion. Previous research examined this issue only indirectly. Buller, Sirzyzewski, and Comstock (1991) hypothesized that interviewees would perceive more suspicion when probed by suspicious interviewers than by nonsuspicious ones, but their suspicion induction failed to produce hypothesized effects, possibly due to a weak suspicion manipulation. However, EEs did perceive suspicion when they received skeptical probes. We therefore hypothesized that *senders (truthtellers and deceivers) perceive suspicion when it is present (H3)*. Although perceptions of suspicion may be partly a function of a sender's own guilt or fear of detection, a communication perspective poses the clear possibility that the suspecter's demeanor is also responsible. This points to the need for research paralleling that on cues stereotypically associated with deceit, namely, cues associated with suspicion. Thus, the second research question asked *what receiver behaviors trigger perceived suspicion (RQ2)*.

If deceit activates suspicion and detection strategies, and alterations in receiver communication in turn alert senders to receivers' suspicion, it follows that deceivers should modify their behavior to evade detection, while truthtellers should do so to reinforce believability. In his self-presentation work, Goffman (1959, p. 318) asserted that both honest performers conveying truth and dishonest ones conveying falsehoods "must take care to enliven their performance with appropriate expressions, exclude from their performances expressions that might discredit the impression being fostered, and

take care lest the audience impute unintended meanings.* Based on this premise, Weiler and Weinstein (1972) and Buller, Strzyzewski, and Comstock (1991) argued that truthtellers and liars alike should engage in credibility enhancement, especially when facing a suspicious receiver. But deceivers are often unable to make these adjustments without also impairing their communication performance. Research on planned versus spontaneous lying (e.g., O'Hair, Cody, & McLaughlin, 1981) and motivated lying (e.g., DePaulo, Kirkendol, Tang, & O'Brien, 1988; DePaulo, Lanier, & Davis, 1983; Zuckerman & Driver, 1985) has shown that conscious efforts to manage one's verbal and nonverbal behavior may backfire—deceivers may unwittingly become stiff, unnatural, anxious, and unsuccessful. Truthtellers' performances may likewise suffer due to fear or to indignation over the false accusation, something Ekman (1985) dubbed the Othello error. Thus, we can state as a general proposition that suspicion or perceived suspicion alters sender behavior.

Bond and Fahey (1987) found that truthtellers subjected to suspicion did indeed appear more deceitful to naive observers, but they did not identify how demeanor actually changed. Buller et al. (1989) initially tackled this issue by examining probing, which was found to cause deceivers and truthtellers to commit more speech errors, pause more, and increase gaze, although deceivers failed to achieve the same high degree of gaze as truthtellers. If probing connotes suspicion, these results imply that suspicion elicits impaired communication performances. However, because probing in itself requires longer turns at talk, it was unclear whether results were attributable to conversational demands or to suspicion. This indeterminacy led to a new experiment which crossed suspicion with probing (Buller, Strzyzewski, & Comstock, 1991). Although deceivers facing suspicion were hypothesized to increase immediacy, increase positive affect, and suppress arousal cues, they actually increased immediacy (gaze) only with strangers while reducing it with friends, sustained nodding (a possible positive cue), and suppressed object-adaptors while increasing self-adaptors (self-touching). EEs who perceived suspicion also reduced physical activity and gestural animation, shook their heads

more (a sign of disagreement), took shorter turns, paused longer, and laughed less relative to those who perceived less suspicion; but they also increased smiling and laughing and reduced speech errors over time. Although these behavioral changes suggest senders attempted to mask deception, the net result was a pattern of (a) dampened involvement, (b) reticence, (c) uncertainty, (d) negative rather than positive affect initially, and (e) performance decrements but (f) improvements over time.

Because perceived suspicion in the Buller, Strzyzewski, and Comstock (1991) failed to match the suspicion induction and results were uneven across three created levels of perceived suspicion, ambiguities remained. Moreover, the experiment did not compare truth tellers' behaviors to deceivers' under suspicion nor did it examine ER interpretations of EE demeanor. The current experiment therefore extended that research by creating a more potent three-level suspicion manipulation (compared to the previous two-level one), testing directly the effects of suspicion on truth tellers as well as deceivers, and including participant interpretations of each other's behavior. It seemed plausible that like deceivers, truth tellers encountering suspicion should experience greater arousal and uncertainty, impaired communication performance (e.g., reduced composure, increased nonfluencies), and leakage of negative affect reflecting their discomfort. Both might also experience increased cognitive load, causing further decrements in performance—for truth tellers, due to a perceived need to make their answers more understandable; for deceivers, due to a perceived need to make their answers more plausible or believable. Essentially, performance anxiety might become a self-fulfilling prophecy. Thus, we hypothesized that suspicion elicits (a) decreased positive affect, (b) increased nervous arousal, and (c) impaired performances from both deceivers and truth tellers (H4). However, truth tellers and liars might respond differently in other respects. Whereas truth tellers might become more engaged in the conversation, to reinforce their image and enable better understanding (Weiler & Weinstein, 1972), liars might be inclined to retreat through strategic nonimmediacy, increased ambiguity, and suppressed arousal leakage. The uncertainties surrounding these latter possibilities led

us to pose as a research question whether *truthtellers and deceivers facing suspicion differ on other behavioral measures (RQ3)*.

If interpersonal communication is truly dynamic and interactants adapt to each other's feedback, behaviors appearing early in a deception episode should differ from those appearing later (something that is not relevant in noninteractive contexts). Buller and Aune (1987) documented that deceiver behavior is dynamic, with some behaviors occurring at the outset of interactions but declining as the interaction progressed (e.g., chair twisting, general animation) and others emerging in the middle or near the end of conversations (e.g., increased vocal pleasantness and immediacy); yet others showed lack of change relative to the dynamic behavior of truthtellers (e.g., brief face and head adaptors). Later experiments found dynamic changes also associated with probing and suspicion. For example, deceivers increased gazing and sustained more facial animation than truthtellers when probed, possibly in an attempt to appear more credible (Buller et al., 1989). Similarly, suspecters who probed had longer response latencies later in the interactions and their probing questions became less skeptical as the conversations progressed (Buller, Sirzyzewski, & Comstock, 1991). To replicate these earlier patterns, we hypothesized that *suspicion induces behavioral change over time (HS)*.

One particular way in which the dynamics of the deception process may play themselves out is through behavioral convergence or divergence between the two interactants. A significant issue in the interpersonal interaction literature has been the conditions under which interactants reciprocate (match) or compensate for the behavioral patterns of their partners (see, e.g., Andersen, 1985; Burgoon, Stern, & Dillman, forthcoming; Cappella, 1986; Hale & Burgoon, 1984). If suspecters become assertive and immediate and deceivers respond by becoming more submissive and nonimmediate, this would manifest itself as compensatory patterns between ERs and EEs. These might be viewed as strategic moves on both people's part. Or reciprocity, especially in verbal and vocal channels, might be used to communicate attraction, liking, and positive affect to the partner.

enhancing the deceiver's image (Giles, Mulac, Bradac, & Johnson, 1987). However, there is some reason to suspect that people adapt rather automatically and subconsciously to the behavior of others and that the most prevalent adaptation pattern is reciprocity (see Burgoon, Le Poire, & Rosenthal, in press; Burgoon et al., forthcoming). If this were the case during deception transactions—and such a possibility has never been explored because so few deception studies have looked at the interaction dynamics—then increased immediacy by suspecters might elicit the same from deceivers. Or increased arousal by one person might evoke increased arousal by the other. If such patterns were to obtain, they would add a new level of complexity to understanding how deceptive transactions unfold, as reciprocal interaction patterns might offset or override other suspicion-induced or deception-induced displays. Thus a research question addressed the extent to which interactants exhibit reciprocal or compensatory interaction patterns under suspicion and deceit (RQ4).

Method

Overview

The experiment was designed to permit participants to engage in "normal" interaction behavior lasting long enough to reveal dynamic changes and to register the influence of both actual and perceived suspicion on each person's behavior. Because several investigations (e.g., Buller & Aune, 1987; Buller, Strzyzewski, & Comstock, 1991; Comadena, 1982; McCornack & Parks, 1986; Metts & Chronis, 1986; Metts & Hippenshield, 1988; Mongeau, 1988) have documented that friends differ from strangers in deception-related cognitions and behaviors, the sample included acquainted and unacquainted dyads to assess moderating effects of relational familiarity. Because participant perceptions may differ from those of observers (Buller, Strzyzewski, & Hunsaker, 1991), trained coders' ratings were supplemented with sender and receiver reports. Pairs engaged in open-ended interviews during which interviewees (EEs) either answered truthfully or deceptively and interviewers (ERs) received a suspicion induction. Afterward, EEs and ERs completed perceived suspicion or

deceit measures and perceptions of each other's communication and coders rated nonverbal behaviors from the videotaped interactions.

Participants

Participants were undergraduate students ($N = 240$) who earned extra credit for engaging in a "research project that involves comparing the interactions of strangers, friends, and intimates during discussion of personal values and beliefs." Half ($n = 60$ dyads) interacted with a stranger. The remainder ($n = 60$ dyads) interacted with a friend, defined as someone with whom they were well-acquainted but who was not their best friend or romantic partner.¹

Procedure and Independent Variables

Several considerations governed the choice of procedures. The task and experimental manipulations needed to be plausible and to elicit natural interactions from friends and strangers alike. Because impression management is a relevant issue in both familiar and unfamiliar relationships, couching the experiment as one related to how people represent themselves to others when expressing personal beliefs seemed a reasonable choice. Equally important was ensuring that the task yielded sufficient samples of conversation from both parties to make suspicion effects evident yet keep the conversations from being so free-ranging that they introduced significant uncontrolled variability and noncomparable conditions. The interview format was selected as suitable for producing relatively comparable experiences across pairs and limiting the verbal behavior of ERs. To prevent EEs from just answering "yes" or "no" and ERs from merely reading the questions aloud, EEs were instructed to give explanations of their answers and ERs were instructed to ask for such explanations. These procedures balanced experimental control with opportunity for free encoding.

The procedures were partially modelled after those of Toris and DePaulo (1985) and Buller and Aune (1987) and are presented in more detail in Burgoon and Buller (1994), where the deception results are reported. In brief, participants were randomly assigned conditions and roles. EEs

completed a questionnaire in which they answered 16 true-false statements related to a mix of socially desirable and undesirable or misanthropic attitudes (see Burgoon & Buller, 1994, for more detail). Half were then told that, "some people, when answering these kinds of questions in actual conversation, tend to misrepresent their true feelings and actions. We want to determine if conversational partners can detect such lies." They were instructed to begin lying on all questions after question five. The truthful baseline period familiarized them with the task and setting before beginning deceit, gave ERs a sample of truthful behavior against which to compare later deceptive behavior, and provided a juncture at which the suspicion manipulation could also be introduced. Truthful EEs received the same lead-in statement but were told, "We want to determine if conversational partners recognize truthful answers. We would like you to be as truthful as possible in giving your answers to all questions."

ERs reviewed a matching set of questions they would be asking during the upcoming conversation, after which those assigned to the moderate or high suspicion condition received the suspicion induction. They were told that people sometimes are far less candid and truthful when answering questions in face-to-face conversation than when completing an anonymous questionnaire. In the moderate condition, they were told that an assistant following the EE's written questionnaire would signal them "if I have reason to believe that your partner is not giving you straight answers" and their task was to determine if the EE "is telling the truth." In the high suspicion condition, ERs were told that if people lie on one question, they are likely to lie on another, and that the assistant's signal would indicate that the partner had lied on one of the questions. Their task was to "determine if he/she is lying on the remaining questions." Although such instructions might seem "heavy-handed" and likely to produce virtual certainty rather than suspicion, prior research had suggested the need for a strong induction to overcome truth biases and to create different levels of suspicion. Pilot test results on these manipulations (reported in the Results section) bore this out. In the low suspicion

condition, these statements were omitted. To equalize ERs' initial attentiveness to EE behavior, all were told they would complete a postinteraction questionnaire on their partner's relaxation, openness, involvement, and candor.

Interviews were conducted in a living-room-style laboratory equipped with a one-way mirror through which interactions were videotaped with participants' consent. After question five, assistants unobtrusively signalled ERs. Interviews continued for five minutes, after which participants separated to complete dependent measures and debriefing.

Dependent Measures

Perceived suspicion and deceit. EEs reported perceived suspicion, and ERs reported perceived deceit, on Likert-format items on the postinteraction questionnaire (see Appendix A). Coefficient alpha (α) reliabilities were .86 and .85, respectively.

Coded nonverbal behavior. Trained coders rated nonverbal kinesic, proxemic, and vocalic cues commonly implicated in the deception literature as strategic behaviors or leakage (Buller, 1988; Buller & Burgoon, 1994; Zuckerman & Driver, 1985). Where justified by conceptual relatedness and reliability analysis, measures these were combined into composites (see Table 1 for interitem reliabilities based on Cronbach's coefficient α and Ebel's interrater reliabilities based on the intraclass correlation for ER ratings). Judgments of *immediacy* included physical closeness, amount of gaze, directness of facing, and amount of forward lean. Positive or negative affect was measured by *kinesic pleasantness*—ratings of frequency of smiling and facial pleasantness—*vocal pleasantness*—ratings on rhythmicity, pleasantness, resonance, friendliness, and warmth. An additional behavior, *frequency of nodding*, conceptually belongs in the kinesic pleasantness category but was analyzed separately due to poor interitem reliability. *Arousal* was measured by frequency of self-adaptors and rocking and twisting, measured separately because of low interitem reliability. Two

measures represented communication performance—*conversation management* (response latency length and smoothness of turn switches) and *fluency* (ratings on fluency and amount of nervous vocalizations). All measures were rated on seven-point unipolar scales ranging from "not at all" or "none" (0) to "very" or "constant" (7) and averaged across coders.²

Coders ($N = 12$) were undergraduate students who worked in four teams of three. Two teams who observed the video-only portion of the interviews rated kinesic/proxemic behaviors, with one group rating ERs and the other rating EEs. The remaining two teams, who listened to the audio-only portion of the videotapes, rated vocalic behaviors and attributes for ERs or EEs. All coders received extensive training. To be certain that ratings occurred after the onset of the deception and suspicion manipulations and before the conclusion of the interviews, they were completed on 1-minute segments after 2-1/2 minutes and 4-1/2 minutes of interaction.

insert Table 1 about here

Perceived verbal and nonverbal communication. To measure participant perceptions of each other's general performance, and to measure perceived EE communication for Hypothesis 4, EEs and ERs evaluated each other's behavior, and EEs assessed their own behavior, on a representative subset of relevant communication features. These were again combined into composites, where appropriate, based on conceptual similarities and reliability analysis. Given some overlap with the coded nonverbal variables and the complexity of the results, only those measures which yielded nonredundant information and substantial effect sizes are reported here; the remaining results can be obtained from the first author. To measure performance impairment in terms of overall perceived desirability and expectedness, EEs and ERs rated each other on two composite measures taken from Burgoon and Walther (1990). The measures and their respective EE and ER reliabilities were *evaluation* ($\alpha = .72, .81$) and *expectedness* ($\alpha = .59, .49$). Less successful communication performances were expected to be evaluated negatively and seen as atypical. The other retained

measures, with respective reliabilities from the EE and ER assessments of EE behavior, were as follows: to measure information management, *vagueness/uncertainty* ($\alpha = .65, .57$); to measure *pleasantness*, a single item pleasantness rating; to measure immediacy, *gaze avoidance* (a single item scale); to measure arousal, *nervousness* (fidgety and uncomfortable, use of adaptors; $\alpha = .80, .71$).

Interpretations. To measure interpretations attributed to each person's communication behavior, both EEs and ERs completed 25 Likert-type statements from Burgoon and Hale's (1984, 1987) Relational Communication Scale (RCS). (Only a subset of the complete instrument was selected so as to minimize respondent fatigue.) This factor-based instrument measures up to twelve themes along which interactants may send and receive messages that define the nature of their interpersonal relationship. These themes reflect fundamental interpretive dimensions for interpersonal encounters and have been used elsewhere to determine the social meanings associated with nonverbal and verbal behavior (e.g., Burgoon, 1991; Burgoon & Newton, 1991; Newton & Burgoon, 1990). Item wordings express perceived relational messages sent by the partner (e.g., "My partner created a sense of closeness between us," "My partner didn't care what I thought," "My partner appeared to be nervous talking with me"). The chosen dimensions and respective EE and ER reliabilities were: *immediacy*, .81, .83; *affection*, .83, .85; *composure*, .81, .78; *dominance*, .72, .55, and *receptivity/trust*, .76, .77. The immediacy, affection, and composure interpretive dimensions are analogues to the behavioral measures of immediacy, pleasantness, and arousal. Dominance was included to assess degree of ER assertiveness and EE submissiveness. Receptivity/trust, which reflects partner expressions of rapport, similarity, openness, and a desire for trust, was included to capture general level of relational positivity and trustworthiness.

Manipulation Checks

Because Buller, Strzyzewski, and Cornstock (1991) had encountered difficulty in inducing a high

degree of suspicion, and because there is reason to question whether postinteraction ratings of suspicion are uncontaminated by the interaction itself, a suspicion manipulation check study was conducted in which participants ($N = 40$) received the same suspicion inductions as the experimental subjects, began the interview, then were stopped after the walk-through signal to complete measures on the degree to which they expected their partner to lie and were motivated to detect deceit. Experimental ERs also rated their suspicion postinteractionally on the scale item, "I suspect my partner was not telling me the truth." To check the deceit manipulation, EEs rated their deceit on two items embedded in the EE questionnaire and estimated the percentage of time they had lied.

Results

Manipulation Checks

Suspicion. Results from the separate pilot study confirmed that the manipulation was successful, $F(2,36) = 3.17$, $\eta^2 = .13$, with a linear increase across conditions in expectations that the partner would lie, $t(36) = 4.02$, $p = .027$ (low suspicion $M = 2.34$, moderate $M = 2.52$, high $M = 3.27$).³ The post-interaction ER reports also showed that suspicion remained higher in the suspicion conditions (moderate $M = 4.02$, high $M = 3.70$) than in the no-suspicion condition ($M = 3.05$), $t(117) = 2.06$, $p = .021$. Moreover, these mean ratings, measured on a seven-point scale, indicate that certainty levels were in the moderate range, supporting the idea that the high suspicion induction did not produce "virtual certainty" of deceit. Although suspicion levels in the high condition did not differ from those in the moderate condition at the close of the interaction, numerous differences between the moderate and high conditions emerged in the hypothesis tests (especially on nonverbal behaviors). In light of the successful pilot results and the potentially confounding influence of the interaction itself on postinteraction ratings, we concluded that different levels of suspicion were induced but recognize that the two conditions may differ qualitatively as well as in degree of suspicious belief.

Deception. Deceivers reported lying significantly more of the time ($M = 90\%$) than did truthtellers ($M = 4\%$), and deceivers rated their behavior as far more deceitful than did truthtellers (lie $M = 5.83$, truth $M = 1.54$) (see Burgoon & Buller, 1994, for complete details).

Analyses

The hypothesized effects of suspicion on coded nonverbal dependent measures were tested with mixed-model repeated measures analyses of variance, with suspicion, deception, and relationship as between-dyad factors, and role (ER, EE) and time (Time 1, Time 2) as within-dyad factors. Role was included as a factor because of the strong possibility that ERs and EEs would behave similarly. Where compound symmetry conditions were violated (based on the Box-M test for homogeneity of variance and Mauchly's sphericity test), the multivariate rather than univariate analysis is reported (see Crowder & Hand, 1990).* Effects of induced suspicion on perceptual dependent measures were tested in 3 (suspicion: high, moderate, low) \times 2 (deception: truth, lie) \times 2 (relationship: stranger, friend) reduced-model analyses of variance with nonsignificant effects pooled in the error term. Using a conventional alpha level of .05 one-tailed for directional hypotheses, all F-tests with $p < .10$ (two-tailed) for hypothesized effects were considered significant. Where multicollinearity among related dependent measures and the Bartlett test of sphericity warranted, multivariate analyses of variance were employed. For both types of analyses, significant effects were followed by appropriate 1 df planned contrasts testing whether suspicion effects produced linear behavioral changes or patterns deviated from linearity (using codes of -1, 0, 1 and -1, 2, -1 respectively). All data were standardized before analysis; however, for ease of interpretation, reported and tabled means are in raw score form. Supplemental correlational analyses examined associations between EE perceived suspicion and communication behaviors and interpretations.

Hypothesis 1

Hypothesis 1, that receivers (ERs) perceive deception when it is present, was confirmed with a

deception main effect on ERs' self-reported suspicion (deception $M = 3.38$, truth $M = 2.69$), $F(1,108) = 9.31$, $p = .003$, $\eta^2 = .07$. The manipulation check analysis also produced a deception main effect on ERs' reported suspicion, $F(1,108) = 8.48$, $p = .004$, $\eta^2 = .06$. ERs were more suspicious when EEs were actually lying (deception $M = 4.15$, truth $M = 3.10$). Consistent with a truth-bias, ERs were also more suspicious of strangers ($M = 4.04$) than friends ($M = 3.23$), $F(1,108) = 4.96$, $p = .028$, $\eta^2 = .04$.

Hypothesis 2 and Research Question 1

Hypothesis 2, that suspecters display more pleasantness and arousal but impaired communication performances, was tested with ANOVAs on the coded nonverbal behaviors and EE ratings of ER's performance. Seven measures produced significant results (see Table 2). Kinesic pleasantness produced a significant three-way interaction among suspicion, role, and time, $F(2,88) = 3.28$, $p = .042$, $\eta^2 = .07$, which was due primarily to Time 1 differences (discussed below), and a main effect for suspicion, $F(2,88) = 7.04$, $p = .001$, $\eta^2 = .138$. Both ERs and EEs were most pleasant kinesically in the high suspicion condition. This pattern supported H2a under high suspicion, but the moderate suspicion condition did not conform to predictions.

The immediacy analysis produced a suspicion main effect, $F(2,88) = 7.04$, $p = .001$, $\eta^2 = .14$, and a suspicion by role interaction, $F(2,88) = 3.53$, $p = .033$, $\eta^2 = .07$. ERs became more immediate as suspicion increased, $t(114) = 1.88$, $p = .033$, but primarily so in the high suspicion condition; EEs showed an increase only under high suspicion.¹ The high suspicion results fit H2b.

The kinesic arousal analyses produced a suspicion main effect on self-adaptors, $F(2,88) = 6.30$, $p = .003$, $\eta^2 = .13$, and a suspicion by role interaction on rocking and twisting, $F(2,88) = 2.40$, $p = .097$, $\eta^2 = .05$. The planned contrasts for ERs were both significant but did not fit the hypothesized pattern entirely. The linear pattern showed a decline rather than an increase, $t(117) = -3.29$, $p = .002$, due to high-suspicion ERs exhibiting the fewest adaptors, but moderate-suspicion

ERs did exhibit the most, $t(117) = 2.68, p = .008$. Rocking and twisting showed a similar, though weaker, pattern, with moderate-suspicion ERs exhibiting the most arousal, $t(117) = 1.77, p = .08$. Thus, the results supported H2c under moderate suspicion but not high suspicion.

The communication performance analyses produced two-way interactions between suspicion and role on conversation management, $F(2,88) = 16.09, p < .0001, \eta^2 = .268$, and on fluency, $F(2,88) = 6.84, p = .002, \eta^2 = .13$. Those who were highly suspicious were least fluent, linear $t(117) = -5.01, p < .0001$, deviations from linearity $t(117) = 3.91, p < .0001$, and exhibited the least smooth turn switches, $t(117) = -5.14, p < .0001$, deviations from linearity $t(117) = 3.31, p = .001$. Here, the high suspicion results supported H2d but the moderate suspicion results did not.

Finally, the evaluation and expectedness measures, analyzed as a MANOVA due to high intercorrelation between dimensions ($\rho = .61$), produced a suspicion by deception interaction, Wilk's $\Lambda = .91, F(4,212) = 2.55, p = .040$, with a significant univariate effect for expectedness, $F(2,107) = 3.93, p = .023, \eta^2 = .07$. When deceiving, EEs saw ERs' behavior as less desirable and unexpected as suspicion increased* (for expectedness while lying, low $M = 5.34$, moderate $M = 4.59$, high $M = 4.33$), consistent with H2d.

Interpretations. Research question 1 asked what interpretations EEs attribute to ER suspicion displays. Five RCS dimensions with high multicollinearity (average $\rho = .50$, Bartlett sphericity test $= .07, p < .0001$) were analyzed as a set with MANOVA; the sixth, dominance, was analyzed in a separate ANOVA due to its independence. The MANOVA failed to produce a suspicion main effect, Wilks' $\Lambda = .91, F(10,206) = 1.01, p = .440$, but the dominance ANOVA did, $F(2,107) = 4.52, p = .013, \eta^2 = .07$. ERs were seen as expressing more dominance as suspicion level increased (low $M = 2.68$, moderate $M = 3.51$, high $M = 3.42$), $t(117) = 2.48, p = .015$.

insert Table 2 about here

Hypothesis 3 and Research Question 2

A suspicion main effect on EE perceived suspicion confirmed Hypothesis 3, that EEs (truthtellers and deceivers) perceive suspicion when it is present, $F(2,108) = 4.10, p = .019, \eta^2 = .05$. EEs sensed more suspicion when their partners were in fact moderately ($M = 3.95$) or highly suspicious ($M = 4.16$) than when not suspicious ($M = 3.36$), and the increase was linear, $t(117) = 2.42, p = .009, \eta^2 = .05$. They also perceived more suspicion when lying to a friend ($M = 4.92$) than when lying to a stranger ($M = 3.97$) or when telling the truth (truth/stranger $M = 3.13$, truth/friend $M = 3.28$), $F(1,108) = 4.18, p = .043, \eta^2 = .03$. Additionally, EE perceptions of deceit correlated with ER self-reported suspicion, $r = .37, p < .001$.

Although targets of suspicion were aware that something was amiss, they apparently were not attuned to some of the specific changes manifested by suspecters. The analyses for Research Question 3, which correlated EE perceived suspicion with coded ER nonverbal behavior, revealed that EEs only attributed suspicion to their partner when ERs actually nodded less, $t(120) = -.24, p < .01$. These effects suggest that the absence of supportiveness cues led EEs to perceive suspicion but EEs failed to register many of the other behaviors associated with actual suspicion.

Hypothesis 4 and Research Question 3

Hypothesis 4, that EEs under suspicion exhibit (a) decreased positive affect, (b) increased arousal, and (c) greater impairment of communication performances than those not under suspicion, and Research Question 4, whether truthtellers differ from deceivers on other measures, were tested in the same manner as Hypothesis 2 but with the addition of participant reports on EE behavior.

Coded nonverbal behavior. Suspicion altered EEs' nonverbal behavior but not in the direction hypothesized. The suspicion main effects reported in the omnibus tests under Hypothesis 2 showed that ERs and EEs alike displayed the most pleasantness and immediacy and the fewest self-adaptors (signs of arousal) under high suspicion, contrary to the hypothesis (see Table 2).

Perceived verbal and nonverbal behavior. ER partner ratings with high intercorrelations

(vagueness/uncertainty, gaze avoidance, and nervousness) were analyzed in a MANOVA (average $\bar{r} = .33$, Bartlett test of sphericity = 58.88, $p < .0001$). The remaining measures were tested with ANOVA. The MANOVA produced a suspicion by deception by relationship interaction, Wilks' $\Lambda = .86$, $F(8,20) = 2.13$, $p = .035$, and a near-significant main effect, Wilks' $\Lambda = .87$, $F(8,210) = 1.81$, $p = .07$, with nervousness and vagueness/uncertainty being most implicated in the univariate interaction analyses: nervousness $F(2,108) = 3.23$, $p = .043$, $\eta^2 = .06$; vagueness/uncertainty $F(2,108) = 4.78$, $p = .010$, $\eta^2 = .08$. In general, vagueness, uncertainty, and nervousness tended to be rated higher under moderate or high rather than low suspicion, but the patterns were anything but uniform (see Table 3). The remaining analyses were nonsignificant.

The MANOVA on EE ratings of own behavior (average $\bar{r} = .30$, Bartlett test of sphericity = 86.58, $p < .0001$) also produced a suspicion main effect, Wilks' $\Lambda = .84$, $F(10,204) = 1.88$, $p = .050$, with significant univariate effects on vagueness/uncertainty, $F(2,105) = 3.48$, $p = .034$, $\eta^2 = .06$, and nervousness, $F(2,105) = 3.05$, $p = .051$, $\eta^2 = .05$. EEs also rated themselves as more vague/uncertain and nervous when under moderate and high suspicion than under low suspicion (see Table 3), but results were inconsistent across moderate and high suspicion conditions.

Insert Table 3 about here

Because perceived suspicion might also affect EE behavior, supplemental analyses correlated EE perceived suspicion with EE coded and perceived behaviors. The more EEs sensed suspicion from ERs, the more they displayed self-adaptors and vocal unpleasantness (based on coder ratings); gaze avoidance (self report); verbal vagueness/uncertainty and nervousness (self and partner reports); and generally behaved in an unexpected, undesirable manner (self and partner reports) (see Table 4).

Interpretations. The relational message dimensions except dominance were analyzed as a MANOVA due to multicollinearity (average $\bar{r} = .45$, Bartlett test of sphericity = 177.42, $p < .0001$). A near-significant main effect for suspicion, Wilks' $\Lambda = .85$, $F(10,208) = 1.69$, $p = .08$,

with strongest univariate effects on composure, $F(2,114) = 2.56$, $p = .082$, $\eta^2 = .04$, indicated that EE_s showed less composure under moderate and high suspicion than under low suspicion (low $M = 5.21$, moderate $M = 4.86$, high $M = 4.80$). The other measures showed negligible differences, as did dominance. Supplementary correlational analyses (Table 4) revealed that the more EE_s perceived suspicion, the less their communication connoted immediacy, affection, composure, and receptivity/trust to ER_s.

Insert Table 4 about here

Overall, the coded behavior analyses were at odds with several measures in the perceptual analyses. The perceptual measures paint a picture of suspicion causing senders to engage in some strategic behavior via uncertainty/vagueness and nonimmediacy but also to become more aroused (more nervousness, less composure), less positive (less affection, less receptivity/trust), and to suffer more performance impairments (undesirable and unexpected behavior). By contrast, the coded nonverbal data paint a picture of those under highest suspicion displaying more pleasantness, immediacy, and fluency than those under moderate or low suspicion but also slightly more vocal unpleasantness as perceived suspicion increased. A possible explanation for these conflicting results is reciprocity effects (see Research Question 5). In answer to Research Question 4, the absence of significant suspicion by deception interactions except on vagueness/uncertainty and nervousness meant that deceivers and truthtellers behaved similarly when interacting with suspicious partners.

Hypothesis 5 and Research Question 5

Relevant omnibus analyses for Hypothesis 5, concerning behavioral changes over time, were reported under Hypothesis 2. Beyond several other time main effects and interactions, two nonverbal measures--kinesic pleasantness and conversation management--showed suspicion-related changes.⁷ These were further probed with paired t -tests (within each level of suspicion where appropriate) to test for changes from Time 1 to Time 2. Whereas moderately suspicious ER_s began as least

kinesically pleasant, they became increasingly pleasant over time, $\beta(36) = 2.12$, $p = .041$. Initially, high suspicion interfered with smooth turn exchanges by both EEs and ERs; over time, both became smoother, ER $\beta(71) = 2.31$, $p = .024$, EE $\beta(72) = 2.40$, $p = .019$. These findings offer modest support for improved behavior and image management over time.

To investigate the extent to which partners adapted their behaviors to one another (Research Question 5), intraclass correlations were computed between partners on each behavior (see Table 5). The positive correlations indicated patterns of reciprocity⁸ on immediacy behaviors, kinesic arousal measures, kinesic pleasantness, nods, vocal pleasantness, turn switches/latencies, and fluency, regardless of deception and suspicion conditions. No compensatory patterns were evident.

To determine whether patterns differed within suspicion and deception conditions, intraclass correlations were calculated within each. While reciprocity continued to predominate, suspicion produced linear changes in the pattern across the three conditions, whereas deception had little effect. The degree of reciprocity for kinesic pleasantness and immediacy decreased linearly as suspicion increased, while rocking/twisting, nods, and vocal pleasantness showed the reverse pattern. Moreover, compensation actually emerged for kinesic relaxation under high suspicion.

The effect of suspicion was further evident when comparing the condition where neither suspicion nor deception were present (which is most like "normal" interaction) to conditions where both deception and suspicion (moderate or high) were present. The prevailing pattern in the "normal" interactions was clearly one of reciprocity. Comparatively, those combining deception with suspicion exhibited substantially less reciprocity of immediacy but greater reciprocity of vocal (un)pleasantness.

Insert Table 5 about here

Discussion

This investigation tested several suspicion-related hypotheses derived from Interpersonal Deception Theory. IDT posits that receivers, like senders, are active agents whose perceptions of

sender deceptiveness alter their own strategic and nonstrategic communication, which in turn influences sender strategic and nonstrategic communication, producing changes over time and mutual adaptation. Testing these predictions required several novel design features, first and foremost, placing receivers rather than senders center stage. Interaction time was also lengthened relative to many previous experiments to permit dynamic patterns to emerge and to increase the ecological validity of the findings. Analyses of actual nonverbal behaviors used the dyad as the unit of analysis and included role (sender/interviewee or receiver/interviewer) and time as factor. Half of the interactions took place between familiar others, permitting an extension to a common context for deceptive communication. Finally, inclusion of a comprehensive set of both perceptual and behavioral dependent measures afforded a more penetrating analysis of the psychological and behavioral processes associated with deceptive encounters.

The resultant findings are complex and in some cases unanticipated. Most are consistent with underlying IDT propositions but not necessarily the specific hypotheses we derived. To recap the findings, we consider each hypothesis and its implications in turn.

Suspicion-Arousing Effects of Deceiver Behavior

A fundamental conversational maxim is that communicators are assumed to be truthful. Receivers are troubled when they suspect otherwise. Based on these premises, we hypothesized and confirmed (as had others) that people sense deception when it is present (Hypothesis 1). This finding may, on the surface, appear at odds with the common claim that receivers detect deception at only slightly above chance accuracy, but that claim is derived from studies that measured detection almost exclusively with a dichotomous judgment of truth or lie. Our finding, along with Buller's earlier work (Buller & Aune, 1987; Buller et al., 1989; Buller, Strzyzewski, & Comstock, 1991; Buller, Strzyzewski, & Hunsaker, 1991), suggests that continuous measures like the ones used here more accurately measure receivers' honesty attributions. The means in the truth and deception conditions

clearly show that receivers recognized a difference in honesty between truthful and deceptive messages; however, their judgments were not sufficiently extreme (i.e., did not cross the midpoint of the scale toward the dishonest pole) to say conclusively the sender was lying.

This has implications for the concept of "detection accuracy." In the traditional measurement model, accuracy has meant labeling a truthteller as truthful and a liar as deceptive. With the continuous measurement model, though, accuracy is not so easily defined because it is a matter of degree. On the one hand, if receivers do not rate a deceptive message as dishonest (shift beyond the midpoint), it is difficult to conclude that they accurately uncovered the deceit. On the other hand, it seems inappropriate to overlook the fact that receivers sensed that something was amiss in the deceptive messages, which led them to judge deceptive messages as "less honest." Moreover, perceptions of less honesty may be sufficient to create suspicion and alter the receivers' behavior.

It should also be recognized that ratings are influenced by the degree of truth- or lie-bias present. Some communication contexts predispose receivers to assume truth more than others. The data on the manipulation check item, "I suspect my partner was not telling the truth," reveal that suspicion can shift the range of honesty attributions such that suspicious receivers may actually judge liars to be dishonest. Importantly, because suspicion did not interact with deception, we can conclude that the sensitivity to deception was preserved across levels of suspicion. This implies that receivers have a certain degree of detection sensitivity or "accuracy" that will often be missed by the dichotomous measurement model. Moreover, if a receiver's honesty assessment is uncertain (i.e., near the midpoint), a dichotomous choice between truth and lie fails to capture the actual judgment; many receivers may be reluctant to commit to the lie option under such circumstances.

Apart from third-party information about another's veracity (as occurs when suspicion is experimentally induced), receivers may become aware at some "intuitive" level that deception is occurring due to the sender's demeanor. Elsewhere, we reported that receiver suspicion rose the

more senders were nonimmediate, displayed unpleasantness, were nervous, and generally created a poor impression (see Burgoon, 1992b). These behavioral patterns conveyed relational messages of nonimmediacy, nonaffection or dislike, noncomposure, nonreceptivity and untrustworthiness. Although it is unclear from correlational analyses whether such behaviors precede or postcede elevated suspicion, research showing that deviant behavior elicits deception attributions (Bond, Omar, Pitre, Lashley, Skaggs, & Kirk, 1992) reinforces the likelihood of these kinds of atypical behavior patterns triggering suspicion. Of course, the relationship may also be nonrecursive, in which case such behaviors must also be regarded as consequents of suspicion.

Effects of Suspicion on Suspecter Behavior

IDT posits that suspicion is manifested through a combination of strategic and nonstrategic behaviors. The results did not conform completely with the hypothesized relationships, in part due to moderate and high suspicion producing different behavioral profiles, but did conform to the more general proposition that suspicion alters the suspecter's behavior. High-suspicion receivers conformed most closely. In keeping with hypothesized strategic behavior and image management, they adopted a pleasant, immediate, and dominant style and managed to suppress self-adaptor behavior. But they also displayed "nonstrategic" leakage in the form of nonfluencies, nervous vocalizations, awkward turn-switches, and longer response latencies, which led deceivers to see their behavior as atypical. By contrast, moderately suspicious receivers were less pleasant, immediate, and aroused (although also dominant), but they were fluent, smooth, and quick in their turn exchanges. These conflicting patterns are perplexing. Speculatively, they may have arisen because moderately suspicious receivers were not suspicious enough to activate strategic behavior but were uncertain enough to leak some affect and arousal cues. Meantime, high-suspicion receivers may have attempted to manage their kinesic behavior but the increased effort to detect deception and the greater attention to their own demeanor may have come at the expense of vocal performance. Strategic moves are effortful and

may be distracting, leading to vocal impairment just as with deception. The dominance finding is also consistent with findings elsewhere that suspicious partners are seen as more manipulative (Toris & DePaulo, 1985). It seems fair to conclude, then, that receivers are more than passive recipients of sender initiatives.

It is also the case that not all "suspects" were equally suspicious; their degree of suspicion varied within and across conditions. Correlations between receivers' self-reported suspicion and receivers' demeanor therefore can furnish additional clues as to how partners might become aware of suspicion. As reported in Burgoon (1992b), the communication of more suspicious receivers was seen by senders as more dominant, uncomposed, undesirable, and unexpected.

Suspect Awareness of Suspicion

Based on the presumption of truthfulness in communication, senders should expect to have their messages believed. Because they also generally are attuned to feedback from receivers, they should become aware when their credulity is in question and, especially when deceiving, should be watchful for any doubt or skepticism being expressed. We confirmed Hypothesis 3, that both truthful and deceptive senders are aware when the receiver is suspicious. We also found that deceivers were more likely to perceive suspicion than were truthtellers, and especially when deceiving a friend. Buller, Strzyzewski, and Comstock (1991) had interpreted these latter findings as indicative of people being more sensitive to the real suspicions of their friends, i.e., being more accurate in detecting suspicion. However, in the present experiment at least, receivers were actually more suspicious of strangers. Thus some of the perceived suspicion apparently arises from a communicator's own projective processes--"I'm lying, therefore my partner must suspect that I am deceiving"--rather than from relational familiarity alone breeding greater sensitivity to suspicion. However, internal mental processes do not tell the whole story. Perceived suspicion was not confined to liars; even truthful communicators perceived it when it was in fact present, which partly implicates the suspecter's

demeanor (or some interaction factor) in alerting senders to the presence of suspicion.

As for the specific behaviors that heightened perceived suspicion, although suspicion was signalled through several demeanor changes, much of this information was apparently lost on senders. Senders only attributed suspicion to their partner when receivers actually exhibited less backchanneling in the form of head nods. In a similar vein, Buller, Strzyzewski, and Cornstock (1991) found that senders only perceived suspicion when confronted with skeptical verbal probes, a pattern consistent with a lack of nodding possibly conveying nonacceptance of the senders' responses. A wide array of other vocalic and kinesic features failed to elicit suspicion in this investigation or the previous one. This meager showing implies either that (a) other behaviors not measured here partly accounted for the perceived suspicion or (b) senders were oblivious to the behaviors responsible for their perceptions of suspicion, possibly reflecting an "automaticity" or "mindlessness" in decoding and encoding of messages. This creates a challenge for future research to determine what verbal and nonverbal behaviors trigger perceived suspicion. The alternative that perceived suspicion was more imaginary than real is discounted by the test of Hypothesis 3 itself showing that perceived suspicion increased linearly with actual suspicion and with receiver's self-reported suspicion.

Effects of Suspicion on Suspect Behavior

The effects of suspicion on senders were far less subtle than on receivers, but neither uniform across suspicion conditions nor across informants. Trained coders' observations portrayed senders under moderate suspicion as similar behaviorally to those under low suspicion, while those under high suspicion were characterized as pleasant, immediate, and kinesically composed but also awkward in turn-switching (which improved over time). The self-report data provide a striking contrast. Senders saw themselves as giving vague and uncertain answers, as being nonimmediate and unpleasant, and often as more nervous under moderate or high suspicion compared to low suspicion. Their partners also saw them similarly. Moreover, senders who most sensed suspicion not only gave an unflattering

account of their own behaviors, their partners also saw their communication as expressing less immediacy, affection, composure, and receptivity/trust, and as generally undesirable.

The discrepancies between participant and coder (observer) reports on sender behavior under increasing suspicion create an interpretation quandary: Whose reports should be regarded as the most valid--participants' or observers'? In behalf of the participants is the evidence that senders and receivers gave very similar reports about own and other's behavior. Yet participant reports could be colored by their own internal states. Receivers, who were themselves the source of the suspicion, may have cast the senders in the role of liar and thus been quick to attribute nervousness, nonimmediacy, unpleasantness, and poor performance to senders, in line with stereotypes about deceiver behavior. In a similar vein, senders, once they sensed suspicion, may have felt anxious and uncomfortable and attributed the same nonimmediate, unpleasant, ineffectual performance to themselves as did receivers.

In behalf of coders is the argument that they should be supplying the most objective data, based on their training and position as impartial observers. Yet observer reports might be less accurate because unlike participants, who based their perceptions on both verbal and nonverbal behaviors, observers focused only on nonverbal behaviors and a limited subset at that. Too, participants had greater access to subtle and viscerally experienced nonverbal cues not detectable from videotapes. The discrepancies between observers and participants might also be due to differential weighting of channel information, with participants weighing vocalic cues such as vocal relaxation more heavily than kinesic cues, which would account for participants seeing senders as more nervous than did observers. But, this speculation runs contrary to other research showing that participants tend to rely more heavily on visual than auditory information when judging honesty (Buller & Hunsaker, 1992; Buller, Strzyzewski, & Hunsaker, 1991). A third possibility, consonant with the premises of IDT, is that both reports are valid and due to the fact that internal experiences are not always overtly

manifested. Senders exposed to suspicion may have felt some degree of nervousness but, as suspicion increased, were motivated to suppress that nervousness behaviorally, resulting in the appearance of a high degree of nonverbal composure and immediacy under high suspicion. This behavioral management may have been overlooked by participants, whose impressions were largely informed by senders' initial behavior. Some support for this speculation comes from the results showing interactions with time, where pleasantness and turn smoothness were lowest in Time 1 but improved substantially by Time 2. If subsequent research were to show these same kinds of patterns, it might imply that participants "lock in" on early information in forming their impressions and disregard later changes. Although this would argue for participant reports being less "accurate," this does not make their reports any less valid, because their own perceptions are their "reality" upon which they may have based subsequent behavioral choices. Thus it becomes important to know how both participants and trained observers view deceptive transactions so that causal patterns can be explored more fully.

The unprecedented findings from this investigation may also be attributable to this investigation permitting ongoing interaction and to incorporating the most comprehensive dependent variable set to date, both in terms of number of measures included and the use of perceptual and behavioral data in the same experiment. Because some findings conflict with previous research and/or with hypotheses, they raise questions about previous conclusions that were based on very limited subsets of behavior. Clearly, further replications are warranted to see if these same patterns and same discrepancies between participants and observers hold.

One last noteworthy finding is that deceivers and truthtellers were equally affected by suspicion. The behavioral profile was the same regardless of whether senders were telling the truth or lying. Thus, suspicion is capable of engendering a deceptive-looking display, even when a person is not deceiving. It may create a self-fulfilling prophecy that leads truthtellers to be mistaken for deceivers.

Dynamics of Deceptive Encounters

The repeated measures analyses produced several behavioral changes over time for senders and receivers alike and some additional changes that were a function of suspicion. These findings re-emphasize the importance of incorporating time in research designs investigating deceptive conversational behavior. A functional communication perspective implies that deceivers and detectors are constantly working at their image, modifying behavior in response to feedback from the partner. Moreover, factors such as suspicion are not always present at the outset of conversation but arise naturally in later stages of interactions. Tapping into these temporal processes requires longitudinal designs, without which researchers risk overlooking key aspects of deceptive conversations and drawing conclusions that do not generalize to typical interpersonal deceptive encounters. Timing of measurement also becomes a crucial issue with these designs, because behaviors measured early may look altogether different from behaviors measured late.

The particular temporal patterns uncovered in this investigation conform with our speculations that communicators attempt greater behavior and image management over time. Moderately suspicious receivers were able to exhibit more pleasantness over time and both senders and receivers in the high-suspicion condition achieved smoother turn-taking and quick response latencies over time.

A unique feature in this experiment is the examination of behavioral coordination during deceptive interactions. Past research might had led to the expectation of compensation, given that deceivers, at least, should become nonimmediate while receivers should maintain moderately high immediacy. Surprisingly, the prevailing pattern instead was reciprocity. When suspecters engaged in high immediacy, deceivers followed suit, which ironically may have made them appear forthright and honest. Suspicion was most disruptive (compared to deception) of these interaction patterns. It increased the reciprocity of vocal pleasantness, nods, and kinesic anxiety; attenuated, but did not completely eliminate, reciprocity of kinesic relaxation, immediacy, and kinesic pleasantness; and actually produced compensation of kinesic relaxation (under high suspicion). A significant

implication of these findings is that interactants' behaviors were dependent on each other's interaction patterns and not solely a function of suspicion or deception. This reinforces our belief that deceptive conversations cannot be understood by looking at only one person's behavior. The consistency of, and reasons for, suspicion's disruptive effect on interaction patterns warrant further study.

Limitations and Future Directions

Although the majority of hypotheses received some support, limitations of the present experiment merit mention. One is that the experimental task and/or laboratory setting did not elicit completely normal behavior. Whereas friends were highly animated with each other before the experiment began, they frequently became wooden and restrained once the taping started. This creates a real quandary about whether interpersonal deception research, if conducted in a semi-controlled environment, will yield artificial results and prevent us from truly unmasking the deception process. However, if such research is conducted in more natural environments under less controlled conditions, the variability across individuals may be too great to discern any systematic principles. These procedural concerns pose one of the greatest challenges for researchers entering the interactive arena. Relatedly, the use of an interview format meant that participants, especially interviewers, had relatively scripted behavior and brief turns that may have provided insufficient behavioral samples from which partners could detect behavioral changes. This warrants creating tasks that give participants more opportunity for free encoding and for longer interactions.

Another less than satisfying result from the current experiment was the lack of consistent linear effects for increases in suspicion. One possibility is that the two suspicion conditions did not truly differ from one another, but this conclusion is unsupportable in light of the number of differences that emerged across the two conditions. In the perceptual data, moderate suspicion tended to produce equal or stronger effects than high suspicion; in the behavioral data, most of the action was in the high suspicion condition. Another possibility is that the two conditions differed qualitatively in

degree of uncertainty and discomfort generated. This possibility has prompted us to incorporate measures of certainty in subsequent experiments. Our current speculation is that uncertainty is curvilinearly related to suspicion such that moderate suspicion provokes more uncertainty than high suspicion, the latter being a condition where one is beginning to believe one has justification for doubting a partner's veracity and honesty. Under this interpretation, moderate suspicion would be the most disconcerting and cognitively demanding because of the ambivalence created and the difficulty of deciding whether to reveal or conceal one's suspicions. These factors could account for the impaired kinesic performance of moderately suspicious interviewers. If high suspicion represents a point surpassing some threshold of doubt, then the greater certainty might "free" interviewers to pursue the truth more aggressively and to engage in their own strategic behavior management, presenting an appearance of relaxation so as to minimize senders' awareness of their suspicions. Nevertheless, they might still leak their concerns and/or stress through the leakier vocal channel, which would account for the pattern of results in the high suspicion condition. These speculations argue for continued testing of different suspicion manipulations to determine how degree and type of suspicion alter behavior and why.

The current findings are provocative in revealing the complexity of interactive interpersonal deception processes. Future investigations that address the interplay between deceiver and deceived, over-time communication dynamics, and the relationship between deception and other communication objectives can open new frontiers in understanding deception and interpersonal interaction.

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Table 1

Interitem Reliabilities and Interrater Reliabilities on Coded Nonverbal Measures for Interviewers

<u>Dimension/Category</u>	<u>Items</u>	<u>Interrater Reliability</u>	<u>Interitem Reliability</u>
Immediacy	Closeness	.77	.58
	Gaze		
	Lean		
	Facing		
Kinesic Pleasantness	Smiling	.83	.94
	Pleasantness		
	Nods	.76	
Kinesic Arousal	Rocking/twisting	.83	
	Self-adaptors	.79	
Conversational Management	Response latencies	.71	.70
	Smooth turn switches*		
Fluency	Fluency	.74	.61
	Nervous vocalizations*		
Vocal Pleasantness	Rhythmic	.71	.88
	Pleasant		
	Flat*		
	Friendly		
	Warm		

Note: Asterisked items were reverse scored; reliabilities were averaged across interviewers and interviewees.

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Table 2

Means (and Standard Deviations) for Suspicion Effects on Coded Receiver BehaviorMAIN EFFECTS AND INTERACTIONS WITH ROLE

		Sender Low (n=38)	Sender Moderate (n=42)	Sender High (n=40)	Receiver Low (n=38)	Receiver Moderate (n=42)	Receiver High (n=40)
Immediacy Composite		3.74 (.78)	3.69 (.75)	4.34 (.56)	3.56 (.89)	3.68 (.84)	3.98 (.65)
Self-Adaptors		2.70 (1.85)	2.80 (1.65)	2.08 (1.24)	2.28 (1.38)	2.54 (1.70)	1.36 (1.06)
Rocking and Twisting		3.58 (2.05)	3.39 (2.02)	3.41 (1.78)	2.52 (2.05)	3.37 (1.82)	3.01 (1.46)
Fluency/Nervous Vocalizations		3.99 (1.06)	3.99 (1.11)	4.26 (.68)	4.37 (1.02)	4.60 (1.15)	3.35 (.74)
<u>INTERACTIONS WITH TIME</u>							
Kinesic Pleasantness	Time 1	4.38 (1.47)	4.56 (1.18)	4.62 (1.08)	4.61 (1.46)	4.23 (1.41)	4.77 (.83)
	Time 2	4.49 (1.34)	4.59 (1.31)	4.81 (1.18)	4.73 (1.32)	4.67 (1.32)	4.78 (.90)
	Average	4.44 (1.34)	4.58 (1.16)	4.72 (1.07)	4.64 (1.40)	4.45 (1.36)	4.78 (.76)
Turn Switches/ Response Latencies	Time 1	4.94 (1.19)	4.90 (1.08)	4.58 (.68)	5.55 (1.04)	5.40 (1.08)	4.27 (.84)
	Time 2	4.86 (1.23)	4.76 (1.32)	5.24 (.66)	5.45 (1.06)	5.52 (.98)	4.49 (.89)
	Average	4.90 (1.06)	4.83 (.97)	4.91 (.51)	5.50 (1.00)	5.46 (.98)	4.38 (.81)

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Table 3

Means (and Standard Deviations) for Suspicion Main Effects on Receiver (Interviewer) and Sender (Interviewee) Assessments of sender Verbal/Nonverbal Behavior and Relational Messages

MAIN EFFECTS

		Suspicion								
		<u>Low</u> (n=38)	<u>Mod</u> (n=42)	<u>High</u> (n=40)						
<u>Sender Verbal/Nonverbal Behavior</u> (reported by self)										
Vagueness/uncertainty		2.67 (1.28)	3.04 (1.20)	3.33 (1.32)						
Nervousness		2.72 (1.40)	3.52 (1.40)	3.05 (1.49)						
<u>Sender Verbal/Nonverbal Behavior</u> (reported by partner)										
Vagueness/ Uncertainty	<u>Truth</u>	No (.43)	Strangers Suspicion <u>Mod</u> (1.35)	High 2.28 1.06	No (1.25)	Friends Suspicion <u>Mod</u> (.71)	<u>High</u> 2.70 (1.08)			
	<u>Lie</u>	2.62 (1.05)	3.08 (.83)	3.05 (.77)	3.06 (.84)	3.48 (1.31)	2.02 (.73)			
Nervousness	<u>Truth</u>	2.90 (1.51)	3.20 (2.14)	2.56 (.62)	2.83 (1.66)	2.95 (1.46)	3.50 (1.86)			
	<u>Lie</u>	2.75 (1.53)	3.25 (1.49)	4.70 (1.13)	4.04 (1.69)	3.15 (1.66)	3.15 (1.96)			

Note: Perceived ER verbal/nonverbal behaviors have been omitted because there were no significant effects.

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Table 4

Significant Correlations between Sender (Interviewee) Perception of Suspicion and Sender Communication Behaviors

	Sender's Perception of Receiver Suspicion
<u>Sender Verbal/Nonverbal Behavior</u> (reported by receiver)	
Vagueness/uncertainty	.30**
Nervousness	.20*
Evaluation	-.65**
Expectedness	-.31**
<u>Sender Verbal/Nonverbal Behavior</u> (reported by self)	
Vagueness/uncertainty	.53**
Gaze Avoidance	.33**
Nervousness	.45**
<u>Relational Message Interpretations</u> <u>Attributed to Sender Behavior</u>	
(reported by receiver)	
Immediacy	-.58**
Composure	-.48**
Affection	-.53**
Receptivity/Trust	-.53**

*p < .05 one-tailed; **p < .001 one-tailed

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Table 5

Intraclass Correlations between Sender and Receiver Behaviors

Behavior	Overall (N=120)	Suspicion			Deception		Deception & Suspicion Present (n=41)	Deception & Suspicion Absent (n=19)
		No (n=38)	Mod (n=42)	High (n=40)	Lie (n=60)	Truth (n=60)		
Immediacy Composite	.42*	.55*	.30*	.07	.35*	.45*	.36*	.75*
Nods	.29*	.17	.21	.34*	.18	.31*	.32*	.43*
Kinesic Pleasantness	.43*	.48*	.42*	.22	.48*	.34*	.42*	.42*
Vocal Pleasantness	.18*	-.09	.20	.60*	.20	.23*	.51*	-.02
Rocking/twisting	.18*	.14	-.06	.60*	.19	.15	.34*	.29
Self-adaptors	.24*	.10	.25	.21	.21	.28*	.36*	.28
Turn Switches/ Latencies	.49*	.11	.23	.32*	.12	.14	.46*	.53*
Fluency	.70*	.03	.25	.18	.15	.04	.76*	.67*

Note: Asterisked items are significant at $p < .05$.

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Endnotes

1. Data from married participants are omitted here because the sample was much smaller and procedures differed somewhat for them.
2. Additional measures were coded but suffered from lower interrater or interitem reliabilities and therefore are not reported here.
3. Motivation to detect deception was also greater in the two suspicion conditions, $F(2,36) = 4.56$, $p = .017$ (no $M = 12.41$, moderate $M = 15.50$, high $M = 15.35$).
4. It should be noted that the multivariate analysis approach is more conservative than the univariate approach.
5. Because the behaviors included in the immediacy composite sometimes may offset one another (see Burgoon et al., 1989), a supplementary analysis, incorporating the individual nonverbal behaviors as a third within-subjects factor, was conducted to see which nonverbal behaviors were most responsible for the immediacy effect. Two significant two-way interactions, suspicion by role, $F(2,88) = 3.53$, $p = .033$, $\eta^2 = .07$, and suspicion by nonverbal behavior, Wilks' $\Lambda = .072$, $F(6,172) = 2.22$, $p = .043$, revealed that suspecters showed greater immediacy by directly facing and gazing at their partners, especially under high suspicion. Friends and strangers also differed somewhat in which immediacy behaviors they adjusted, suspicion by relationship $F(2,88) = 4.47$, $p = .014$, $\eta^2 = .09$. While strangers became more immediate on all behaviors as suspicion increased, friends faced each other more directly but decreased gaze and proximity.
6. There was also a significant main effect for deception, Wilk's $\Lambda = .94$, $F(2,106) = 3.63$, $p = .030$, with a significant univariate effect on expectedness, $F(1,107) = 7.28$, $p = .008$, $\eta^2 = .06$. EEs rated ER behavior as more unexpected when EEs were lying.
7. Additional time effects included a time by deception by role interaction on kinesic pleasantness; a time by relationship by role interaction on kinesic pleasantness; a time by relationship by role interaction on immediacy; and time main effects on vocal pleasantness, immediacy, fluency, and rocking and twisting.
8. We use the terms "reciprocity" and "compensation" advisedly. Elsewhere, we have argued that these terms should be reserved for cases of clear adaptation by one partner to another and that "matching" and "complementary" should be used when patterns are merely similar or dissimilar, without evidence of one partner influencing the other. It might therefore be more appropriate in the section that follows to speak of matching and complementary patterns. However, the results from the repeated measures analyses encourage us to conclude that partners were adapting to one another and not merely sustaining their own individual interaction styles.

Interpersonal Deception:

VI. Effects of Preinteractional and Interactional Factors on
Deceiver and Observer Perceptions of Deception Success

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Running head: DECEPTION SUCCESS

Interpersonal Deception:

VI. Effects of Preinteractional and Interactional Factors on Deceiver and Observer Perceptions of Deception Success

Abstract

Past research on deception success has focused on receiver judgments, ignoring deceiver perceptions, which may influence the ways deceivers choose to behave in interpersonal interactions. The present study investigated how several preinteractional and interactional factors affect both deceiver and observer perceptions of deception success. Preinteractional factors included three that have been found relevant to deceptive communication: social skill, self-monitoring, and motivation. Interactional factors included receiver suspicion plus four proposed by the four-factor theory of deception (anxiety, affect, task difficulty, and behavioral control). Results indicated that deceivers' perceptions of success were most affected by all the interactional factors (especially anxiety, interaction difficulty, and conversational normality). Conversely, observers were more affected by preinteractional factors such as deceiver social skill. Only conversational normality affected both deceivers' and observers' assessments of success: The more natural and expected the communication behavior, the more believable. Additionally, contrary to previous findings, motivation and self-monitoring produced nonlinear relationships with deceiver perceptions of success.

The majority of research on interpersonal deception has examined the believability judgments of receivers (either as observers or participants) without attending to deceivers' own assessments of deception success. Yet deceivers themselves must also monitor their own success levels so as to determine whether they need to adjust their performances (Buller, Comstock, Aune, & Strzyzewski, 1989; Buller, Strzyzewski, & Comstock, 1991). When evaluating the believability of their communication, deceivers, like receivers, are likely to rely upon a host of variables, including preinteractional (individual difference) factors, and interactional factors, to judge the effectiveness of their overall presentation. Two questions that arise are: (1) what factors are most salient in making such judgments, and (2) do deceivers and receivers rely on the same factors in forming their judgments?

The present investigation addresses how deceivers and observers compare in their perceptions of deception success. Understanding how preinteractional and interactional factors affect deceiver and observer perceptions of success can yield insight into the complex evaluation process to be accomplished by those who encode and decode deceptive messages. Our focus here is on one form of success, deceiver believability.¹ In line with interpersonal deception theory (Buller & Burgoon, 1994a, 1994b), the success of a deceptive act is hypothesized to depend on both communication-relevant preinteractional factors (e.g., self monitoring, social skills) and interactional factors (i.e., those associated with actual communication between interactants).

Viewing Deception Success from Multiple Perspectives

Attribution theorists have long been concerned with viewing interpersonal interaction from multiple perspectives because they believe that observers and participants attend to and interpret behaviors differently (Bradbury & Fincham, 1990; Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). Studies centering on conversational involvement (Burgoon & Newton, 1991),

communication competence (Canary & Spitzberg, 1990; Guerrero, 1994), conversational memory (Stafford, Waldron, & Infield, 1989), and the expression of anger (Guerrero, 1994) all indicate significant differences in how senders, receivers, and observers view the same interaction. Compared to observers, interaction participants are occupied planning, encoding, and interpreting messages; managing impressions; providing and evaluating feedback; monitoring and sending relational messages; and regulating interaction (Burgoon & Newton, 1991; Street, Mulac, & Wiemann, 1988), which may affect their relative attention to the behaviors of another actor as well as their evaluations of those behaviors. Generally, these studies have found that the closer one is to the interaction, the more favorably one rates the behavior. For instance, Burgoon and Newton (1991) found that participants assigned more favorable interpretations to behavior than did observers.

Within the deception literature, findings have followed a similar pattern (Buller, Strzyzewski, & Hunsaker, 1991; Buller & Hunsaker, 1992). Because observers are freer to concentrate on the cues emitted by the source, Ekman and Friesen (1969) speculated that they should be better at detecting deception. Buller, Strzyzewski, and Hunsaker (1991) confirmed this, finding that receivers attributed more truthfulness to senders than did observers and, as a consequence, were less accurate. Receivers also attended to different cues when judging honesty (e.g., focusing more on facial cues than did observers) and assigned different evaluations to the same behaviors. For example, receivers judged positive affect (in the form of head nods and smiling) as more indicative of honesty while observers judged these same behaviors as signalling less honesty.

It seems reasonable that deceivers, as interaction participants, should be more like receivers than observers and thus should differ in their assessments of their own deception success. As participants, they must engage in multiple conversational tasks that heighten cognitive busyness relative to observers. They also have access to different cues than observers that may influence the focus of

their attention. For instance, awareness of their own internal states, such as anxiety, may lead them to attend to cues leaking those states. If they have planned their deception, they may compare their actual performance to their expected performance. Other research has shown that senders hold a unique perspective on their own performances, rating themselves as more communicatively competent than their conversational partners rate them (Canary & Spitzberg, 1990; Guerrero, 1994). Thus, deceivers may view preinteractional and interactional factors differently than do observers.

Preinteractional Factors

Many individual characteristics of a deceiver may influence the patterns and outcomes of a deceptive interaction. Three communication-related preinteractional factors that have been shown to be relevant to the deception process are social skill (Riggio & Friedman, 1983; Riggio, Tucker, & Throckmorton, 1987), self-monitoring (Brandt, Miller & Hocking, 1980; Elliot, 1979; Miller, deTurck, & Kalbfleisch, 1983; Zuckerman, DeFrank, Hall, Larrance, & Rosenthal, 1979), and motivation (DePaulo & Kirkendol, 1989; DePaulo, Lanier, & Davis, 1983; Gustafson & Orne, 1963).

Social Skill

Riggio et al. (1987) suggested that deception ability and skillful communication are inextricably linked. Individuals who are consistently successful at deception have mastered a complex social skill, the ability to emit behaviors that convey credibility while hiding behaviors that convey dishonesty (see Buller & Burgoon, 1994a, and Zuckerman & Driver, 1985, for reviews of these behaviors). Moreover, communicators regard deception as a more difficult and complex task than truth-telling (Zuckerman & Driver, 1985). Thus individual differences in communication skill should be related to actual and perceived success.

Previous research has confirmed that some individuals are consistently successful while others are consistently detected (DePaulo, Blank, Swaim, & Hairfield, 1992; Miller & Burgoon, 1982;

Zuckerman, Larrance, Spiegel, & Klorman, 1981; Riggio & Friedman, 1983). Zuckerman et al. (1981) posited that deceivers who are frequently successful may present a demeanor that is seen by the receiver as more likable and credible. Receivers evaluate these skillful individuals as truthful, in line with a "demeanor bias." Consistent with this premise, Riggio and Friedman (1986) found that extraverted, expressive individuals were judged as more likable and honest. A related experiment (Riggio et al., 1987) showed that three social skills related to encoding ability--social control, social expressivity, and emotional expressivity--were associated with an "honest demeanor bias." Social control refers to role-playing ability. Social expressivity is defined as communication skill in speaking and engaging others in conversation. Emotional expressivity gauges skill in the spontaneous expression of emotion. While Riggio et al.'s (1987) findings apply to observers, we reasoned that deceivers should likewise see themselves as more successful at deception if they regard themselves as more communicatively skilled (in line with Bem's (1967) self-perception theory and with halo effects in self-evaluation). Consequently, both observers and deceivers should perceive more socially skilled communicators as more successful at deception.

H1: Social skill dimensions (social control, social expressiveness, emotional expressiveness)
are positively related to both deceiver and observer judgments of believability.

Self-Monitoring

Self-monitoring involves the ability to control expressive behavior and occurs "out of a concern for social appropriateness" (Snyder, 1974, p. 528). High self-monitors are sensitive to social norms and monitor their actions carefully to conform to such norms. Conversely, low self-monitors rely on internal, rather than external, social norms and are guided by emotional states more than by rules of appropriateness (Snyder, 1974).

Research has shown that self-monitoring aids deception detection for observers (Brandt et al.,

1980; Geizer, Rarick, & Soldow, 1977). Less clear is whether self-monitoring improves deceivers' success. Some researchers (Krauss, Geller, & Olson, 1976; Elliott, 1979; Miller et al., 1983) have found that high self-monitoring deceivers, probably due to their abilities to control expressiveness, are less transparent than their low self-monitoring counterparts. Yet other researchers have demonstrated that high self-monitors are more detectable than low self-monitors (Zuckerman et al., 1979). These inconsistent findings led Zuckerman et al. (1981) to conclude that self-monitoring does not directly affect individual skill at deceiving. Because no previous research had examined deceivers' perceptions of their own success, and because self-monitoring is so closely linked to communication performance, we considered it premature to dismiss self-monitoring as relevant. The first research question (RQ1) therefore examined whether self-monitoring is related to both deceiver and observer perceptions of deception success.

Motivation

Motivation is likely to function as both a preinteractional and an interactional component. Traditionally, researchers who manipulated motivational level treated motivation as a preinteractional factor. In the present study, motivation is measured using post-tests, and therefore probably reflects interactive changes in motivation as well as level of motivation that existed prior to the interaction.

Whether motivation is seen as preinteractional or interactional, research findings have confirmed its importance within deceptive encounters. Two contradictory predictions regarding the relationship between motivation and deception success have been advanced. The first is that highly motivated deceivers may plan their strategy more carefully and thus feel more successful (Koper & Miller, 1986). Alternatively, high motivation may increase the pressure to perform well, which may make deceivers overly anxious and therefore less successful. The majority of research has supported the latter prediction, showing that high levels of motivation can backfire because motivated individuals try too hard to be effective, producing a "motivational impairment effect" (DePaulo, Kirkendol, Tang, & O'Brien, 1988; DePaulo et al., 1983; DePaulo, LeMay, & Epstein, 1991; DePaulo, Stone, & Lassiter, 1985; Siegman, 1982; Zuckerman & Driver, 1985; Zuckerman et al., 1981). Because

motivated deceivers attempt to control their behavior, they often end up appearing stiff, rigid, and unnatural (DePaulo & Kirkendol, 1989; Siegman, 1982; Zuckerman et al., 1981). We therefore expected increased motivation to be associated with lower perceived success by deceivers themselves as well as by observers.

H2: Motivation is negatively related to deceiver and observer perceptions of deception success.

Interactional Factors

The interaction process itself also summons additional factors determining deception success. Four that should be particularly relevant, based on prior theorizing (e.g., Zuckerman & Driver's, 1985, four-factor theory), and that include perceived receiver reactions are anxiety, self-presentation, difficulty of interaction, and suspicion detection.

Anxiety

Within Zuckerman and Driver's (1985) theory of deception behavior, two closely interrelated factors are anxiety and negative affect: "...deception is supposed to be associated with negative affects such as guilt and anxiety-guilt about engaging in deception and anxiety about being caught" (p. 132). Anxiety may occur before interaction takes place, but is likely to heighten in the presence of the receiver, particularly when the deceptive act takes place. Numerous researchers have noted that anxious behaviors tend to accompany deceptive communication (Buller & Aune, 1987; Buller & Burgoon, 1994a; Ekman & Friesen, 1969, 1972; Hocking & Leathers, 1980; Zuckerman & Driver, 1985; Zuckerman et al., 1981) and many can be distinguished from general arousal (deTurck & Miller, 1985).

Anxiety can lead to various verbal and nonverbal expressions of negative affect. Ekman and Friesen (1972), for example, found that deceivers increased their use of self adaptors when anxiety increased. In intimate relationships, there is evidence that deceivers may actively strive to control leakage behavior, including anxiety cues, in order to appear more believable (Buller & Aune, 1987; Buller, Strzyzewski, & Comstock, 1991). This implies that deceivers are aware of some of the

anxiety cues they emit and that self-perceptions of anxiety are likely to reduce evaluations of success.

H3: Anxiety is negatively related to deceiver and observer perceptions of success.

Normality of Self-Presentation

Maintaining a natural-appearing interaction is an integral part of impression management and is related to Zuckerman and Driver's (1985) third factor of deception, attempted control. Within deceptive interaction, impression management is especially crucial (Buller & Burgoon, 1994a; Kraut, 1978; Kraut & Poe, 1980). In conversational contexts, a central objective for deceivers is to project a positive, honest image. Kraut and Poe (1980) argued that individuals who are successful deceivers may also be effective impression managers. Melcher (1992) proposed a model of self-presentation based upon the notion that communicators who are considered trustworthy when deceiving must be able to: (1) exercise some control over the creation and transmission of the intended impression, (2) have an effective strategy at their disposal, (3) transform this strategy into behavior, and (4) assess and evaluate the target's feedback correctly. Together, these perspectives on self-presentation and deception suggest that deceivers who can communicate naturally under the pressure of deception are likely to project positive images and to be successful in deceiving their partners.

Several researchers believe that general behavioral shifts away from one's typical communication style are indicative of deception (Bond, in press; DePaulo et al., 1985; Miller & Burgoon, 1982; Zuckerman & Driver, 1985). As Buller and Burgoon (1994a) contend, deviations from typical communication patterns may be the single best indicator that deception is occurring. Bond (in press) proposed that judgments of believability are linked to expectancy violations such that behavior violating normative expectations is likely to arousal suspicion. Buller and Burgoon further speculated that skilled communicators should be better able to minimize deviant behaviors than unskilled communicators. Thus, perceptions of success in maintaining typical communication are likely to be related to perceptions of overall success in deceiving.

H4: Effective self-presentation in the form of conversational normality is positively related to deceiver and observer perceptions of deception success.

Difficulty of Interaction

Zuckerman and Driver's (1985) fourth factor concerns the cognitive difficulty associated with deception: "Lying can be considered a more difficult task than truth telling. . . . To the extent that lying is a complex task, it may give rise to speech characteristics, pupillary responses, and gestures indicative of such complexity" (p. 133). If deceiving is perceived as difficult, minimizing anxiety and maximizing conversational normality should also be perceived as difficult. When individuals attempt to control their behavior, they may come across as slick, phony, and unlike their normal selves.

H5: Difficulty of interaction is negatively related to deceiver and observer perceptions of deception success.

Suspicion

During the past seven years, researchers have begun examining suspicion as a variable predicting both deception-linked behavior and judgments of veracity (Buller, Strzyzewski, & Comstock, 1991; Burgoon, Buller, Dillman, & Walther, 1992; Levine & McCornack, 1991; Toris & DePaulo, 1985). There is evidence that deceivers alter their behaviors and control deceptive cues when they suspect that their partners know they are being dishonest (Buller, Strzyzewski, & Comstock, 1991). However, heightened surveillance may interfere with deceivers' ability to manage their behavior (DePaulo et al., 1992). Noticeable receiver suspicion should therefore be viewed as a threat to the success of the deceptive interaction.

H6: Perceptions of receiver suspicion are negatively correlated with deceiver and observer perceptions of success.

A final research question (RQ2) addressed the relative contributions of foregoing preinteractional and interactional factors in predicting perceptions of success.

Method

Participants

In exchange for communication training, 40 adults (21 men and 19 women) from a metropolitan southwestern community participated in an experiment purportedly on interviewing skills.

Participants came from the County Courthouse Jury Assembly Room, local Toastmaster's clubs, and the city Job Core.

Social Skills Pretest

Prior to reporting to the experiment, all participants completed an abbreviated Social Skills Inventory (Riggio, 1986) that measured three types of social skill. *Social Control* refers to social self-presentation skill. Those high in social control tend to be tactful, socially adept, self-confident, and able to play various social roles. They are also skillful at adjusting their own behavior to "fit with what they consider to be appropriate to any given social situation" (Riggio, 1986, p. 651).

Social Expressivity is skill in verbal speaking and in engaging others in social interaction. Those high in social expressivity tend to appear outgoing and to speak spontaneously. Finally, *Emotional Expressivity* is "individuals' ability to express, spontaneously and accurately, felt emotional states as well as the ability to nonverbally express attitudes and cues of interpersonal orientation" (Riggio, 1986, p. 651). Thus, emotional expressivity references nonverbal skill while social expressivity references verbal skill. All three of these social skills relate to encoding rather than decoding ability (Riggio, 1986; Riggio et al., 1987). To increase participant cooperation and efficiency in data collection, each subscale was reduced from 15 items to 9. Coefficient alpha reliabilities were .69, .73, and .42 for social control, social expressivity, and emotional expressivity, respectively. The low reliability on emotional expressivity was not due to a reduction in the number of items; the Spearman-Brown Prophecy yielded a reliability of only .53 for a 15-item measure. To overcome this unreliability, we created a unidimensional measure that included all 27 items ($\alpha = .83$) to be analyzed in addition to the three subscales.

Procedures and Instrumentation

When participants arrived at the communication research laboratory (an apartment-like setting equipped with a one-way mirror), they were told that the purpose of the study was to address how accurately people portray themselves to others. They were instructed to engage in two brief interviews. All interviews were videotaped with the participants' consent. For the first interview,

participants were told to be completely truthful. This allowed the participants to practice their answers once, to become accustomed to the experimental setting, and to provide truthful answers to compare to later deceptive ones.

Before beginning the second interview, participants were told that the next phase of the investigation was intended to give them practice adapting to situations in which it is not in one's best interest to be completely truthful. They were instructed to answer truthfully to the first two questions in the upcoming interview and then to alter their answers by giving (1) completely untrue answers (falsification; $n = 9$), (2) vague, indirect, unclear, or ambiguous answers (equivocation; $n = 10$), (3) answers that withheld, omitted, or avoided relevant information (concealment; $n = 11$), or answers that fell short of the truth, with no further instruction given (general deception; $n = 10$). These different forms of deception were employed to increase generalizability of the findings as well as to test other issues in interpersonal deception theory.² Participants reviewed the interview questions for a few minutes before the interview commenced.

Interviewers (2 males, 2 females) were trained to control the interview by asking questions in a preset order and giving equivalent levels of feedback across interviews. Interviews each lasted approximately eight minutes.

Following the second interview, participants completed a 20-item posttest measuring their impressions of their communication during the interview. Multiple-item scales and their respective coefficient alpha reliabilities were as follows: motivation, $\alpha = .63$; anxiety, $\alpha = .88$; self-monitoring, $\alpha = .73$; self-presentation, $\alpha = .18$; and deception success, $\alpha = .83$. Because the normality of self-presentation scale produced poor reliability, it was split into two parts, conversational normality ($\alpha = .53$) and typicality of communication (single item). Difficulty of interaction and perceived suspicion were measured with single-item scales.³

Observer Ratings

Past deception investigations employing observers have commonly utilized one of three research strategies: some have had groups of observers judge a single videotaped stimulus person (e.g., Ekman

& Friesen, 1969), some have yoked each observer with a participant so that there is only one observer per sender (e.g., Buller & Hunsaker, in press), and some have had multiple observers rate multiple interactions, usually with the objective of obtaining aggregate group means on observer accuracy (e.g., DePaulo & Pfeifer, 1986). In none of these approaches do researchers report the degree of consensus or "reliability" among observers (and in the case of single observers, no such estimate is calculable).

In the current experiment, we adopted an alternative strategy that has the benefits of controlling for within-observer variability by using a repeated measures approach, obtaining multiple estimates per sender (four estimates from each of two observers) so that averaged estimates per sender are more stable, and supplying an estimate of observer consensus. Observers were a pair of undergraduate students who watched all the videotaped interactions and judged the truthfulness of each interviewee to four questions asked in the second interview. Ratings were made on a four-item scale assessing believability: (1) The interviewee gave responses that seemed exaggerated, (2) The interviewee gave responses that appeared truthful, (3) The interviewee gave believable responses to the question asked, and (4) The interviewee gave false responses to the question asked (interitem $\alpha = .87$). Consensus between rater judgments, as measured by the intraclass correlation, was moderate ($r_i = .32$, $p < .05$). This indicates that observers made similar, though not identical, attributions about the deception displays. Although the two observers' perceptions are somewhat discrepant, Rosenthal (personal communication) argues that low intercorrelations between raters or items may actually mean that a broader spectrum of a given construct domain is being measured (as compared to high intercorrelations, which reflect greater redundancy). This would be especially true in the case of subjective judgments such as truthfulness, which the bulk of past evidence suggests carry some degree of uncertainty and which have typically yielded only slightly better than chance accuracy. Moderate concordance might therefore be the best one could hope to achieve between any two observers (recognizing, of course, that greater "consensus" could be achieved by employing a larger contingent of observers but at substantially increased costs to obtain such judgments).

One risk of low consensus is that the variance between observers may attenuate other results. However, as will be seen, numerous significant results obtained despite this risk.

Results

Preinteractional Factors

To test the first research question and Hypotheses 1 and 2, social skills, self monitoring, and motivation were correlated with deceiver and observer perceptions of success. As shown in Table 1, social control and social expressivity were positively related to observer ratings of believability, as was the overall social skill measure. None of the social skill measures were significantly correlated with deceivers' perceptions of their own success. Thus, Hypothesis 1 was confirmed for observers but not for deceivers.

— Insert Table 1 about here —

Bivariate correlations revealed that self-monitoring was related to observer perceptions of success but not to deceiver perceptions of success (Table 1). Because past researchers have reported inconsistent findings on the effects of high and low self-monitoring on deception success (Krauss et al., 1976; Elliott, 1979; Zuckerman et al., 1979; Zuckerman et al., 1981), the possibility of a nonlinear relationship suggested itself. Deceivers were trichotomized into high, moderate, and low self-monitoring groups and a post hoc quadratic trend analysis was performed. High ($M = 4.87$) and low ($M = 4.95$) self-monitors saw themselves as more successful than did moderate ($M = 3.75$) self-monitors, $F(1,36) = 7.16$, $p < .05$, $\eta^2 = .16$. For observers, the trend analysis confirmed that the significant correlation was primarily linear, linear $F(1,36) = 3.42$, $p = .07$, two-tailed; quadratic $F(1,36) = .01$, $p = .91$. High self-monitoring deceivers ($M = 4.90$) were viewed as most successful, followed by moderate self-monitoring deceivers ($M = 4.68$) and then low self-monitoring deceivers ($M = 4.42$). Thus, there was a curvilinear relationship between self-monitoring and success for deceivers, with high and low self-monitors perceiving greatest success. In contrast, observers saw only high self-monitors as most successful.

Motivation also was related to observer perceptions of success but unrelated to deceiver

perceptions of their own success; however, its association with observer ratings was not as predicted (Table 1). Because Ekman, O'Sullivan, Friesen, and Scherer (1991) reported findings supportive of the claim that moderate levels of motivation may cause deceivers to leak deceptive cues that would be controlled by highly motivated deceivers, possible nonlinear associations between motivation and success were tested. Deceivers were divided into high, moderate, and low motivation groups. The post-hoc quadratic trend analysis revealed a U-shaped relationship between motivation and deceiver perceptions of success paralleling the pattern for self-monitoring. Individuals with high ($M = 5.04$) and low ($M = 4.85$) levels of motivation considered themselves to be more successful than those with moderate ($M = 3.75$) levels of motivation, $F(1,36) = 7.96$, $p < .01$, $\eta^2 = .18$. The quadratic trend on observers' perceptions of deception success was not significant, $F(1,36) = 2.25$, $p = .14$, two-tailed ($M = 4.96$, 4.44 , and 4.53 for high, moderate, and low motivation, respectively). The results failed to support Hypothesis 2. Instead, motivation was curvilinearly related to deceiver perceptions of their own success, with moderate motivation seen as least successful, while motivation was positively related to observer perceptions.

Interactional Factors

Hypotheses 3 through 6, testing the associations between interactional factors and perceptions of success, were analyzed with Pearson product-moment correlations (Table 1). Results supported Hypothesis 3: Anxiety was negatively related to deceiver perceptions of success but not to observer perceptions. For both deceivers and observers, Hypothesis 4, that normality of self-presentation is positively related to perceptions of success, was supported for the conversational normality measure. For the typicality measures, H4 was only supported for deceivers. Hypothesis 5, that communication difficulty is inversely related to perceived success, was again supported for deceivers but not for observers. Finally, Hypothesis 6, was confirmed only for deceivers whose perceptions of receiver suspicion were negatively related to perceived success. Together, results for deceiver perceptions of success support Hypotheses 3 through 6. For observers, only conversational normality affected deception success as predicted.

The second research question, which addressed the relative impact of preinteractional and interactional factors on deceiver and observer perceptions of success, was analyzed with hierarchical multiple regression. This approach is appropriate because it permits testing variables according to their presumed temporal ordering, namely that preinteraction factors are antecedent to interactional ones. At the same time, it controls for the multicollinearity among factors so that the most parsimonious set of unique predictors can be identified. The factors that were correlated significantly with perceptions of success were entered into the regression models with the block of preinteractional factors forced into the model first and interactional factors (anxiety, conversational normality, typicality of communication, difficulty of interaction, and partner suspicion) entered second, using the stepwise method. To incorporate nonlinearity, linear and quadratic terms were included for self-monitoring and motivation.

Because they became nonsignificant in the second step, the four preinteractional factors were all removed, leaving three interactional factors as significant predictors of deceiver perceptions of success: anxiety, conversational normality, and typicality of communication* (reparameterized model $R = .80$, $R^2 = .63$, adjusted $R^2 = .60$, $F(3,32) = 18.51$, $p < .001$). Anxiety, which was negatively related to deceivers' perceived success, was the strongest predictor. Both measures of self-presentation normality also were significant predictors of deceiver success perceptions, with conversational normality having a larger effect than typicality (See Table 2).

— Insert Table 2 about here —

In the analysis on observer perceptions of success, all the preinteractional factors (social expressiveness, social control, and the linear and quadratic terms for self-monitoring and motivation) were entered into the model initially, followed by a sole interactional factor--conversational normality. Only social control and conversational normality were significant predictors of observer perceptions of success. In the reduced model, $R = .50$, $R^2 = .25$ adjusted $R^2 = .21$, $F(2,36) = 6.11$, $p < .01$, social control had a greater effect than conversational normality on observer ratings (See Table 2).

Discussion

Many researchers have examined the effects that preinteractional factors, such as social skill and motivation, have on deception success. Similarly, researchers have uncovered numerous interactional factors, like anxiety and conversational normality, that are associated with judgments of truthfulness or deceit. These factors have typically been studied individually rather than in combination and never simultaneously. The present study therefore offers a unique perspective on how such factors affect judgments and whether they have differential impact on senders versus receivers.

The current results reveal that the role of preinteractional and interactional factors vary, depending on whether success is approached from the deceiver's or observer's perspective. For deceivers, interactional factors had the predominant impact on perceptions of success, whereas for observers, preinteractional factors carried the most weight. Conversational normality, an interactional factor, was the only variable to affect both deceiver and observer perceptions of success in the same manner. Motivation and self-monitoring were also related to both deceiver and observer perceptions of success but in different ways. It should come as no surprise, then, that deceivers and observers did not judge deception success similarly: Deceiver and observer perceptions of success were not correlated ($r = .12$, $p > .10$).

Deceiver Perceptions of Success

Deceivers appear to focus on interactional factors when judging their deceptive success. They regarded themselves as most successful when their anxiety level was low, when they regarded their deception task as low in difficulty, and when they thought the interviewer was not suspicious. Many of these factors coincide with those proposed in Zuckerman and Driver's (1985) four-factor theory of deception. Although that theory was intended to explain deceiver behavior, it may be applicable as well to self (but not observer) perceptions of success. Unlike observers, deceivers have access to their own internal states. They may experience difficulty producing deceptive messages, may feel anxious about being detected, and may worry that they are leaking information to the receiver, making them overly self-conscious about their performance and the extent to which it appears normal.

and credible.

What is interesting is that preinteractional factors such as social skill and self-monitoring, which presumably reflect stable orientations toward communication and previous performance patterns and therefore might be the best basis for predicting current success, are less relevant. Instead, deceivers are attuned to the current situational contingencies (which include interaction with a stranger, engaging in an unfamiliar task, and the requirement to deceive), in line with making situational attributions about performance (i.e., the fundamental attribution error, Jones & Nisbett, 1971) rather than relying on dispositional characteristics such as social skill and self-monitoring. In a path-analytic sense, the preinteractional or dispositional factors are more distal and current interaction experiences more proximal in predicting success. Part of this may also be due to interactional factors serving as correction mechanisms for deceivers. Greater anxiety and perceived difficulty may motivate them to strive even harder to control such behavior and to appear poised and believable.

Although it was hypothesized that high motivation would backfire, both motivation and self-monitoring produced curvilinear effects on deceivers' perceptions of deception success, with high and low levels of each associated with greater perceived success than moderate levels. Such a relationship between motivation and self-perceptions of success was surprising given the preponderance of literature showing motivation to be negatively associated with deception success. One possible explanation is that those who are highly motivated feel more well-prepared than those who are only moderately motivated. Comparatively, those who are moderately motivated may attend less carefully to their own performance and the receiver's feedback and therefore be more uncertain about their success. Those who are unmotivated may not care if they are successful, and therefore might not judge themselves harshly.

Another possibility is that motivation levels were only moderate, rather than high, in previous studies (see, e.g., DePaulo et al., 1983; Ekman et al., 1991; Gustafson & Orne, 1963; Koper & Miller, 1986). The majority of studies examining motivation as predictive of deception success have only utilized two conditions, ostensibly representing high and low motivation. For example,

Gustafson and Orne (1963) told subjects in the high motivation condition that only people of superior intellect succeed and if they were successful they would receive a dollar. DePaulo et al. (1983) manipulated motivation by claiming deception success was (or was not) linked to personal and professional success. It is possible that these manipulations produced at best moderate motivation, leaving the effects of high motivation untested. Moreover, including only two levels of motivation in past research meant that possible curvilinear relationships went undetected. This warrants incorporating multiple levels of motivation in experimental manipulations and testing for nonlinearity in future studies.

The curvilinear relationship between self-monitoring and deceiver perceptions of success at first blush is also counterintuitive. High self-monitors, possibly because they carefully control their behavior, judge themselves as successful. This is consistent with observer judgments that high self-monitors are most successful. Low self-monitors, in contrast, appear to overestimate their successfulness. It may be that low self-monitors are unaware that they are doing anything wrong. As with motivation, past studies have often contrasted low and high, but not moderate, self-monitoring. For instance, Miller et al. (1983) utilized those scoring in the top and bottom 20 percent of Snyder's (1974) self-monitoring scale as subjects in their study. When those with moderate levels of self-monitoring ability are included, results on the association between self-monitoring and deception ability may take a different turn, as evidenced by the data presented herein.

Observer Perceptions of Success

Observers regarded performances of more socially skilled individuals, especially those high in social control, more motivated, and higher in self-monitoring, as more successful. Somehow, then, these characteristics translated into more believable performances, even though the deceivers themselves were not aware of it. Thus, four of the five preinteractional factors (social control, social expressivity, self-monitoring, and motivation), but only one interactional factor (conversational normality), were associated positively and significantly with observer perceptions of success. The finding that more motivated deceivers were more

successful is contrary to past research. It may be that motivation only impairs performance for those delivering a more scripted or one-way message. In interactive situations, greater motivation may enable deceivers to stay focused on their conversational responsibilities, whereas unmotivated individuals who are only occupied with sending a message may concentrate too hard on the deceptive statement, leading them to appear stiff and unnatural.

Multiple regression analysis indicated that social control was the largest contributor to observer perceptions of success. This result is similar to Riggio et al.'s (1987) finding that of all the social skill measures, social control was most consistently related to observer perceptions of believability. Together, the Riggio et al. (1987) results and the results presented herein present a compelling case that skill in self-presentation and managing verbal encoding is an important factor linked to deception success. Skilled communicators are also skilled deceivers; their general communication talents carry over to difficult and discomfiting tasks such as deception. They are better able to modulate their expressiveness so that their deceptive communication does not differ from their honest communication (DePaulo et al., 1992). Rather than examining deception-related behaviors exclusively, researchers may need to also focus on the impressions of likability conveyed by social skilled individuals who are evaluated with an honest demeanor bias.

Relatedly, conversational normality, considered a component of self-presentation, was found to be a significant predictor of deceptive success. The fact that it was the only factor significantly predictive of both deceiver and observer perceptions of success in the regression analyses reinforces the impression management nature of deception and confirms the importance of engaging in expected behavior. Expectancy violations can lead to perceived dishonesty (Bond, in press; Burgoon & Hale, 1988). Interpersonal deception theory (Buller & Burgoon, 1994b) is premised on the notion that deceivers attempt to project positive and honest images. When individuals deceive during the course of interpersonal interaction, multiple messages are constantly being encoded and decoded. The credibility of an interactant hinges on sending messages that promote an appropriate, believable, and natural image while scanning for clues about the success of those impression management strategies.

Conclusion

Fully understanding the deception process requires acknowledging the role preinteractional and interactional factors play in influencing perceptions of success. Analyses that examine only psychological factors or communication behaviors will be incomplete. Deceivers' assessments of success were most influenced by their own performance and their perception of the interviewer's suspicion. By comparison, preinteractional predispositions had greater influence on observer judgments than did actual interactional factors. For deceivers and observers alike, the apparent normalcy and naturalness of the interaction was a major contributor to the perceived success of the deceiver's performance. Consistent with previous speculations and research, behavior that deviates from an expected presentation is less effective.

The discrepancies between deceiver and observer perceptions, which were evident in the low correlation between deceiver and observer judgments of success, coupled with the counterintuitive finding that observers were more sensitive to preinteractional factors than interactional ones, raises the possibility that deceivers are not very accurate in assessing their own ability and may even underestimate their own success. Nevertheless, their own ongoing assessment will doubtless guide their communicative strategies. How different levels of perceived success affect strategy selection and levels of anxiety and difficulty would therefore be a worthwhile question to explore in future research.

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Table 1

Correlations between Deceiver and Observer Perceptions of Deception Success and Preinteractional and Interactional Factors

	Deceiver Perceptions of Deception Success	Observer Perceptions of Deception Success
<u>Preinteractional Factors</u>		
Social Control	-.04	.38**
Social Expressivity	.02	.27*
Emotional Expressivity	-.09	.15
General Social Skill	-.03	.34**
Self-Monitoring	.40†	.26*
Motivation	.43†	.29*
<u>Interactional Factors</u>		
Anxiety	-.69***	-.13
Typicality of Communication	.48**	-.02
Conversational Normality	.35*	.36*
Difficulty of Interaction	-.54***	-.15
Partner Suspicion	-.41**	-.07

* $p < .05$; ** $p < .01$; *** $p < .001$. † based on eta.

Note: All tests are one-tailed. For most analyses, sample size was 40 but dropped as low as 35 with some cases of missing data.

Table 2

Regression of Success Measures on Significant Preinteractional and Interactional Factors

EFFECTS ON DECEIVER PERCEPTIONS OF SUCCESS

<u>Variables</u>	<u>b</u>	<u>Beta</u>	<u>t</u>
Anxiety	-.46	-.57	-4.85***
Conversational Normality	.33	.32	3.00**
Typicality of Communication	.18	.28	2.38*
(constant)	4.10		

EFFECTS ON OBSERVER PERCEPTIONS OF SUCCESS

<u>Variables</u>	<u>b</u>	<u>Beta</u>	<u>t</u>
Social Control	.04	.37	2.46 *
Conversational Normality	.16	.34	2.33 *
(constant)	2.52		

Endnotes

1. Global assessments of believability tap into one important measure of deception success that is particularly relevant when looking at deceiver and observer perceptions. In other research utilizing participant perceptions (e.g., Burgoon, Buller, Ebisu, & Rockwell, *in press*), we have conceptualized deception more broadly to include measures of detection accuracy and truth bias.
2. Research focusing upon broadening the construct of deception (Ekman, 1985; Miller, Monegeau, & Sleight, 1986; Bradac, 1983; Hopper & Bell, 1984; Metts & Chronis, 1986; Metts & Hippensteele, 1988) has shown that at least three general forms of deception are prevalent: Falsification, Concealment, and Equivocation. Thus, these three deception types were utilized in the current experiment. Manipulation checks showed that deceivers perceived their communication to be more clear when falsifying ($M = 5.43$) than when concealing ($M = 5.14$) or equivocating ($M = 5.22$), $F(2,27) = 2.30$, $p = .06$, one-tailed. A planned comparison showed that deceivers viewed concealment as less informationally complete ($M = 4.56$) than falsification ($M = 4.97$) or equivocation ($M = 4.70$), $t(27) = 1.59$, $p = .06$, one-tailed. We also checked whether deception type moderates the relationship between preinteractional or interactional factors and perceptions of success. Since no significant moderating effects were found, deception type was not included to test the hypothesized associations between success and both preinteractional and interactional factors.
3. Below are the item wordings for each measure:
Self-Monitoring: I didn't pay any special attention to my behavior during the interview (reverse scored). I paid very close attention to my behavior during the interview. I carefully thought about my answers during the conversation. I was very careful about the way I behaved.
Motivation: I tried to convince the interviewer I was honest. I did not try to convince the interviewer I was honest (reverse scored). I was not worried to make sure the interviewer didn't think I was lying.
Anxiety: I felt very tense talking to the interviewer. I felt awkward during the interview. I felt awkward during the interview.
Conversational Normality: I tried to have a normal conversation. I didn't care if the conversation was natural (reverse scored).
Typicality of Communication: My behavior during the interview was typical for me.
Difficulty of Interaction: It was easy to answer the interviewer's questions.
Partner Suspicion: The interviewer expected me to lie.
Deception Success: I was successful in convincing the interviewer that I was honest. The interviewer could tell there was something wrong with my answers (reverse scored). I didn't think the interviewer believed me (reverse scored). The interviewer thought something was "fishy" about my answers (reverse scored). I was proud of my interview performance.
4. After the preinteractional factors (linear and quadratic terms for self-monitoring and motivation) were entered, the quadratic term for motivation was removed on the fifth step. Motivation was removed on the sixth step. Anxiety was then entered on the seventh step. The quadratic and linear terms for self-monitoring were removed on the ninth and tenth steps, respectively. Finally, conversational normalcy and typicality of communication were added on the last two steps.